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What role do private protected areas have in conserving global biodiversity?

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What role do private protected areas have in conserving global biodiversity?

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Abstract

This essay explores the role that private protected areas have in conserving biodiversity, by considering their efficacy, the cost of management, their social impacts on neighbouring communities, and their impacts on biodiversity beyond their boundaries. In particular, it considers how private protected areas might differ from protected areas under state, shared or community governance. It finds that private protected areas do not face unique challenges or opportunities compared with other forms of protected area, although they experience certain key issues in a different way, such as the role of market activities in conservation, the uneven distribution of protected areas across biomes, and the social accountability of protected areas. It finds that private protected areas are best considered as a supplement, not a substitute, for other forms of protected area

Key words: private protected areas; private conservation; costs; distribution; effectiveness

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About the Author

George Holmes is a Lecturer in Critical Environmental Social Science at the Sustainability Research Institute. He recently completed a Leverhulme fellowship looking at the rise and workings of private and community governed protected areas in southern Chile. His expertise lies in the politics of protected areas, particularly emerging trends in conservation governance, and the interaction of protected areas with neighbouring and resident populations. He has conducted fieldwork in the Dominican Republic and Chile.

Introduction

Private protected areas (PPAs) have a long history. The earliest land trusts in the US date from 1891 (Bernstein and Mitchell 2009), NGOs have owned and managed land for nature in the UK since the late 19th century (Hodge and Adams 2012), and Ochoa Ochoa et al. (2009) cite the case of a Mexican PPA established in approximately 1824. PPAs were discussed at the first World Parks Congress in 1962 (Langholz and Lassoie 2001). Yet compared to other forms of protected area, they have been relatively neglected within the literature, which may be part of a wider tendency amongst conservation scholars to focus on state land, where data and access is more readily available, than private land (Knight 1999). The purpose of this essay is to explore the role of PPAs in conserving global biodiversity, specifically by attempting to answer the four questions on protected areas identified by Sutherland et al. (2009) as having the greatest potential impact on conserving global biodiversity. These questions are part of a longer list of 100 questions drawn up by a large panel of experienced experts to guide future research and practice in biodiversity conservation. It represents the best current attempt to create an overview of the most important and pressing issues. I consider what the answers to these questions are for PPAs, and how this might differ to protected areas under other forms of governance. These questions are: (1) How effective are different types of protected areas (e.g., strict nature reserves, hunting reserves, and national parks) at conserving biodiversity and providing ecosystem services? (2) What is the management cost per hectare required to manage protected areas effectively, and how does this vary with management category, geography, and threat? (3) What are the human well-being costs and benefits of protected areas, how are these distributed, and how do they vary with governance, resource tenure arrangements, and site characteristics? (4) How does the management of protected areas affect conservation beyond the boundaries of the protected area, such as through the displacement of human populations, hunting, or fishing? These questions are not listed in priority order. Analysing PPAs is important because they are relatively rarely studied, yet they make a significant contribution to conservation in some areas, they may be increasing in number, particularly given neoliberal tendencies in conservation which emphasise an increased role for private actors (Büscher and Wande 2007; Igoe and Croucher 2007;

Büscher 2008; Holmes 2012), and because PPAs may work differently to other forms of protected area (Langholz and Lassoie 2001). In answering these, I do not pretend to produce detailed and definitive answers but to outline key trends as well as gaps in knowledge. This paper begins by exploring definitions of protected areas, before exploring each of the four questions.

1. What is a private protected area?

Building on earlier explorations (Langholz and Lassoie 2001; Langholz and Krug 2003), definitions of what constitutes a PPA have become clearer following the publication of the most recent IUCN guidelines (Dudley 2008). These define a protected area as "A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values" (Dudley 2008 p8), and defines PPAs as those "under individual, cooperative, NGO or corporate control and/or ownership, and managed under not-for-profit or for-profit schemes....[where] the authority for managing the protected land and resources rests with the landowners, who determine the conservation objective, develop and enforce management plans and remain in charge of decisions, subject to applicable legislation" (Dudley 2008 p26). This distinguishes PPAs from protected areas under state, shared, or community or indigenous governance. PPAs can fall under any of the IUCN management categories, which are used to distinguish between different kinds of protected areas which have different goals and serve different purposes (see table 1). Hannah's (2006) review of Canadian PPAs explores examples whose management ranges from category 1a to VI, with a variety of owners and stark differences in size. Many countries do not provide any legal frameworks for recognising PPAs as distinct from any other form of private land use, including those with considerable numbers of PPAs, such as South Africa and Chile (Corcuera et al. 2003; Pasquini et al. 2010), but these are recognised within this IUCN definition.

Table 1: Definitions of the IUCN protected area management categories (adapted from Dudley, 2008)

Category	Definition
Ia	Strict nature reserve – "areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values" (Dudley, 2008, p13)
Ib	Wilderness areas – "large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition." (Dudley, 2008, p14)
II	National park – "large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities." (Dudley, 2008, p16)
III	Natural Monument "areas set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. (Dudley, 2008, p17)
IV	Habitat/species management area "areas aim to protect particular species or habitats and management reflects this priority. Many category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category." (Dudley, 2008, p19)
V	Protected landscape/seascape "area where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values (Dudley, 2008, p20)
VI	Protected area with sustainable use of natural resources "protected areas [that] conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area."(Dudley, 2008, p22)

Problems remain with this IUCN definition, particularly in how it defines and distinguishes between ownership and control. Firstly, ownership within PPAs is often

fuzzy, with private individuals or NGOs blending with governments or communities, blurring the lines between what is a private, state or community or indigenous protected area. Secondly, this definition is unclear of whether the defining feature of PPAs is that the land is privately owned, or whether it is privately controlled, where primary responsibility and ability for making land management decisions lies with a private actor. Whilst in most cases the person or organisation who owns the land may also have full management responsibilitu and capacity, there are some cases where control of state-owned protected areas is subcontracted or held in trust by a corporation or NGO (e.g. Büscher and Wande 2007; Carter et al 2008; Holmes 2012, 2013), making it unclear if these are private or state protected areas. Secondly, there is uncertainty over whether PPAs have sufficient longevity to qualify as protected areas, given that they depend on the ability and will of private owners to maintain them, which may be more fragile than the forces underpinning state or community protected areas. For example, owners may die, or lack the will or resources to maintain them. Even state recognition and legislation of PPAs may not protect them from legal challenges and threats such as mining exploration (Rissman and Butsic 2010; Adams and Moon 2013), although this can also apply to protected areas under other forms of governance. Thirdly, there is uncertainty and contradictory statements in key documents (e.g. Dudley 2008) over whether certain conservation tools, such as easements or hunting estates, can be considered as PPAs. Quibbles over definitions of private protected areas are more than merely semantic. A clear definition is important for measuring how many PPAs there are and what contribution they make to conservation. Furthermore, countries looking to formalise, recognise or incentivise PPAs may draw upon the IUCN definition to inform this process, and lack of clarity may hinder this process.

2. How effective are different types of protected areas (e.g., strict nature reserves, hunting reserves, and national parks) at conserving biodiversity and providing ecosystem services?

In considering the effectiveness of PPAs, relative to other governance systems for protected areas, I interpret effectiveness in two ways: firstly, their effectiveness in adding

to the global total of land contained within a protected area, and secondly, their effectiveness in conserving the biodiversity contained within them.

There is a lack of clarity on the effectiveness of PPAs in adding to the global total of protected area, even considering the uncertainty over definitions of PPAs. A search for protected areas containing "private" as part of their title or designation in the World Database of Protected Areas (WDPA) (IUCN/UNEP-WCMC, accessed 11th October 2012) reveals 6169 areas in 25 countries (0.04% of total entries contained within the database), across all management categories, covering at least 25,357 km^2 (equivalent to 0.14% of total area recorded in the database). This is an undercount, not least because the database relies on data supplied by individual national governments, yet many do not recognise PPAs and have no data on them. Some large and longstanding PPAs are missing, including Parque Pumalin in Chile (3109 km^2, established in 1994) and the Savé Valley Conservancy in Zimbabwe (3400km^2, established in 1991). Country level studies show trends missing from the database, and some individual countries show significant areas of PPAs. Carter et al. (2008) calculate that 13% (125,657km^2) of Tanzania is contained within PPAs, most of which is land managed for commercial trophy hunting. Gallo et al. (2009) found that private protected areas cover 24% of the Klein Karoo eco-region in South Africa, compared to 14% covered by state PAs. Overall, enclosed private game areas (a broad category which encompasses areas dedicated to hunting, ecotourism and other activities) cover 16.7% of South Africa, compared with 6.2% gazetted as state protected area (Snijders 2012). Langholz (1999) estimates that PPAs covered 1.2% of Costa Rica, and CODEFF (2005) estimate that 16,042km^2 of Chile (2.12% of total surface area) is covered by PPAs. In Canada, one NGO (Nature Conservancy of Canada) manages 18,000 km^2 of wild land (Hannah 2006), 0.18% of total national land surface area. These studies suggest that PPAs make an important national and local contribution to protected land in some countries, although much data is missing, and PPAs appear to be less significant at a global level.

The contribution of PPAs to global protected area coverage is not just the extent that they cover, but their uneven distribution amongst areas and biomes. Firstly, as

transferable property rights are generally more established for land areas than sea (Schlager and Ostrom 1992), we can expect PPAs to be disproportionately terrestrial – of the 6169 areas in the WDPA which contain the phrase “private” as part of their title or designation, only 36 have a marine component, of which 18 are located in Bermuda. Some marine PPAs are recognised within the literature (e.g. Francis et al. 2002). Beyond these, there are examples where recreational diving companies have secured *de facto* but not *de jure* control over all access to some coral reefs, which they operate as quasi-PPAs, and which can be effective in conserving reef fish diversity (de Groot and Bush 2010). It is worth considering that protected areas under all governance categories are overwhelmingly (IUCN-UNEP/WCMC 2012). Secondly, the distribution of PPAs may be uneven due to the availability of private land which can be used for conservation, and to the incentives which drive the creation of PPAs. 73% of PPAs in Costa Rica border the coast, most likely because formally declaring land as PPA gives landowners more secure tenure than they would have otherwise, particularly against squatter invasions, and coastal lands are a prime site for local government to expropriate land for tourism development and for squatters to invade (Langholz et al. 2000). In Chile, the state has traditionally established protected areas on marginal land where there is little political opposition to conservation (Pauchard 2002), and consequently 84% of the total area contained within state protected areas is located in the austral regions (Pliscoff and Fuentes Castillo 2011). By contrast, Chilean PPAs disproportionately protect temperate forests, which have greater levels of endemism and are under greater threat of habitat destruction than austral regions, yet they are under-presented in the state system, a trend which may be linked to the long history of middle-class nature based tourism in these areas (Myers et al. 2000; Corcuera et al. 2002). Gallo et al. (2009) found that PPAs in the Klein Karoo are found disproportionately in lowland areas, , whereas state protected areas tend to be found in highland areas, which are cheaper and easier to conserve because they have low agricultural productivity and therefore lower opportunity costs. Here, PPAs cover nearly three times as much land as state protected areas, but they also conserve nine times as much habitat defined as endangered and critically endangered compared with state protected areas. Fisher and Dills (2012) found that property owned in the US by The Nature

Conservancy was disproportionately found in areas deemed by The Nature Conservancy to be a high conservation priority. Langholz and Lassoie (2001) argue that many PPAs are contiguous with state protected areas, and therefore contribute to conservation not just by increasing the total area under protection but by serving as a buffer zone or biological corridor for state areas. These examples indicate that the contribution that PPAs make to the effective conservation of biodiversity is not just that they add to the total area under protection, but that they may be conserving areas and biomes which are under-represented in state protected area systems, or which contain higher levels of endangered or endemic species.

There is conflicting evidence over whether PPAs are more effective at conserving the biodiversity contained within them than protected areas under other forms of governance. Krug (2001), and Sims-Castley et al. (2005) argue that whereas state protected areas have few incentives to innovate or become efficient and are subject to changing political priorities and corruption, PPAs are more effective because they often have more flexible management structures, and because they are often under commercial pressures to minimise costs and maximise revenue. Cooke et al (2011) argue that local people may see private conservation as more legitimate than state conservation as it does not challenge private property rights in the same way as many state conservation initiatives, exposing it to less opposition and making it more effective. Hannah's (2006) survey of Canadian PPAs finds that they are well governed, and Francis et al's (2002) study finds that the marine PPAs in the Indian Ocean contain healthier ecosystems than nearby state administered marine protected areas. Conversely, Langholz and Lassoie (2001) argue that, with a few exceptions, PPAs tend to be small and cannot conserve megafauna effectively. Pasquini et al's (2011) survey of NGOs who own PPAs found concerns over whether PPAs had sufficient legal and administrative expertise or institutional strength to effectively manage PPAs. It is worth considering that there are also concerns over the size and management expertise of protected areas under other forms of governance. Others argue that, as they are not backed by an institution as powerful or permanent as the state, owners may struggle to sustain PPAs and give them longevity to effectively conserve biodiversity in the long

term (Langholz and Lassoie 2001; Pasquini et al. 2011). Whilst there appears to be no empirical studies exploring how many PPAs have collapsed, unlike for state protected areas (Mascia and Pailler 2011), there are concerns over the ability of PPAs to sustain long term financial health, particularly those depending on ecotourism and other economic activities, which are subject to given shifting tourism trends and economic fluxes (Langholz and Lassoie 2001, Cousins et al. 2008). There are some high profile failures; John Wamsley, a critic of the inefficiencies of state protected areas, created a company in 1988, Earth Sanctuaries Limited, to run a network of for-profit PPAs in Australia, funded by ecotourism and other commercial activities. The company was listed on the Australian stock exchange in 2000, but was unable to make a profit and folded in 2006 (Sydee and Beder. 2006; Figgis et al. 2005). However, ecotourism revenues have sustained many large and economically successful for-profit PPAs in southern and eastern Africa for decades (Sims-Castley et al. 2005). Whilst discussions over the longevity and contribution of PPAs often focus on commercial activities and profit motives (Krug 2001; Langholz and Lassoie 2001; Sydee and Beder 2006), altruism and the commitment to conservation by owners may make a greater contribution. For example, even though private game reserves in South Africa can be very profitable, Pasquini et al's (2011) survey found that owners were more motivated by conservation than financial goals (see Wallace 2005, for a similar finding with US conservation easements). This implies that such PPAs may be more resilient to economic fluxes which affect commercial activities, and there is no fundamental reason why PPAs should have less longevity than other forms of protected area. PPAs have been successfully run for over a century by NGOs in the UK (Hodge and Adams 2012), and many of the reserves operated by Earth Sanctuaries Limited were taken over by not-for-profit organisations after the company collapsed.

When considering the effectiveness of PPAs in conserving biodiversity, it is worth considering what type of biodiversity they are conserving. As discussed above, PPAs may be disproportionately established in certain biomes with particular features or species. Furthermore, PPAs may be under pressure to make management decisions that protected areas under other forms of governance might not experience to the same

degree. For example, PPAs which depend on ecotourism may be under economic pressure to construct inappropriate developments or have visitor numbers which exceed capacity (Langholz and Lassoie 2001). They may overstock with charismatic species, exotic or extralimital species, or particular vegetation assemblages in order to be attractive to tourists or hunters, even if these may be of questionable conservation value (Sims-Castely et al. 2005; Lindsey 2006; Cousins et al. 2008; Snijders 2012). In South African game reserves, where the “big five” flagship species – elephant, rhino, lion, Cape Buffalo, leopard – are the main attractions to the tourist and hunting industries, PPAs may focus on conserving these at the expense of species which are less glamorous, less attractive to tourists, more expensive to maintain, and therefore less profitable (op.cit.). These reserves can be too small to sustain viable long-term populations of some large species without substantial management efforts (Hayward et al. 2007), and the construction of fences to contain animals within PPAs might disrupt migration patterns (Lindsey 2006). The South African model, which allows landowners to own wildlife living on their property and to benefit from it economically, may inadvertently incentivise PPAs to keep ownership over wildlife within their individual properties, and act against coordinated, large scale, management of species (Hayward et al. 2007). It should also be noted that PPAs have been at the forefront of reintroducing flagship species to their former range in South Africa, that they also conserve less glamorous species, and that re-introducing flagship species which have important ecological functions may have wider, positive ecological benefits on assemblages of flora and fauna (Hayward et al. 2007; Cousins et al. 2008; Snijders 2012). Protected areas under other forms of governance are also under pressure to create environments which are attractive to tourist, and which might undermine conservation goals, particularly given recent trends towards neoliberal forms of conservation in which even state protected areas are expected to pay for themselves through activities such as tourism (West and Carrier 2004). The difference may be that PPAs which depend economically on ecotourism may find it more difficult to resist such pressure, which may limit their conservation value.

Some indication of what measures can increase the effectiveness of PPAs' contributions to conservation can be gained from the limited data on what drives their creation. Financial incentives, particularly around tax deductions, have been influential in promoting PPAs in the US and Australia (Merenlender et al. 2004; Adams and Moon 2013). Formalisation and legal recognition of PPAs, and the creation of associations of PPA owners, has been important in Costa Rica and Paraguay, particularly when it strengthened land owners' tenure (Langholz 1999; Quintana 2005). The creation of legal structures which allow landowners to enclose and legally own wild animals on their property, and to profit from them, were essential to the explosion of PPAs in South Africa. Yet the creation of many PPAs can be attributed not to laws or policies to encourage them, but to the altruism of owners and to wider contextual factors, such as the economic potential of the ecotourism industry in Eastern and Southern Africa (Carter et al. 2008), and the shift in rural economies from agricultural production to recreation in regions such as North America and South Africa (Merenlender et al. 2004; Snijders 2012). As cases such as Chile demonstrate, it is possible to have significant numbers of PPAs in countries which do not legally recognise private conservation as a form of land use, let alone incentivise them, although the recently created PPA association in Chile is promoting legal recognition to encourage more private conservation. Although the national social, political, and economic contexts in which PPAs have emerged vary greatly, these examples imply that formal incentives such as financial benefits may not be essential, and that measures which incur minimal cost to government, such as legal recognition of PPAs and laws to allow ownership of wild fauna, may have a significant impact on PPA establishment.

Yet whilst PPAs may be more or less effective than other forms of protected area, they contribute to conserving biodiversity by preventing land from being used for other, potentially damaging, land uses such as extraction or agriculture. This is only true if PPAs are a supplement to the state PA system, adding land to it, rather than a replacement or substitute for other forms of protected area governance.

3. What is the management cost per hectare required to manage protected areas effectively, and how does this vary with management category, geography, and threat?

There are no studies which explore the relative cost of effectively conserving PPAs compared to similar protected areas under other forms of governance, although there is no reason why they should necessarily cost more or less. As discussed above, PPAs can generate sufficient income from commercial activities such as ecotourism and hunting to cover the costs of conservation. Indeed, they can be the most economically rational form of land use in some areas (Krug 2001).

As well as costs, it is important to consider how income and profits vary by management category, geography, and other factors for PPAs which rely in some part on generating income through activities on their properties. Some business strategies and sources of income may be more viable in some PPAs than others. PPAs often use ecotourism to earn revenue because it promises considerable income with minimal environmental impact, yet not all areas contain biodiversity which can readily be marketed for tourism. The African Parks Network has a strategy of taking over the management of state owned protected areas in Africa which they consider to be failing, and operating them as *de facto* PPAs, funded through high end ecotourism. This is a lucrative but competitive market, but this business approach is only suitable for a handful of protected areas which have the species or natural features to be attractive to this market, leaving the vast majority unable to profit from their activity (Büscher and Wande 2007; Holmes 2012). Income may fluctuate significantly as visitor numbers are vulnerable to changing fashions and geopolitical events. Similarly, emerging markets in payments for ecosystem services may generate more income in some places than others, such as biomes which contain larger amounts of carbon and therefore greater potential value from carbon markets. As a result, PPAs may be more likely to be established or successful in certain biomes with certain types of biodiversity which present business opportunities through tourism or payments for ecosystem services, such as those with

large numbers of “charismatic megafauna” which tourists like to see, or high amounts of carbon, such as peatland.

4. What are the human well-being costs and benefits of protected areas, how are these distributed, and how do they vary with governance, resource tenure arrangements, and site characteristics?

There is relatively little literature exploring the social impacts of PPAs, and how they may differ from the social impacts of protected areas under other forms of governance, although some themes have been identified. Private protected areas have been criticised for preserving nature for the interests and enjoyment of a narrow and wealthy section of society. Firstly, whilst many PPAs are free to access, others can be extremely expensive, which can be particularly problematic when they are located in poor countries (Langholz and Lassoie 2001). Secondly, some PPAs in poorer countries are owned by wealthy foreigners, raising accusations of neo-colonialism, land grabbing and circumventing democratic processes (Langholz and Lassoie 2001; Zoomers 2010). The purchase of large tracts of land for PPAs in southern Chile by US entrepreneur and philanthropist Douglas Tompkins prompted strong debates about colonialism and sovereignty within Chile in the mid 1990s, resulting in presidential interventions preventing further land purchases. The controversy made PPAs a toxic political issue in Chile, so that whilst legal recognition of PPAs was proposed in 1994, the Tompkins controversy may have contributed to a failure to ratify such a law. Similar purchases in neighbouring Argentina by Tompkins and others have led to similar debates and angry political responses (Sanchez 2006), although Tompkins has committed to donating all his PPAs, totalling nearly 2 million hectares, to the Chilean and Argentinean states. In South Africa, the transition of lands from agriculture into game reserves is criticised for undermining food sovereignty (Snijders 2012). Thirdly, in some countries wealthy landowners with large holdings have been transforming their land from other uses into PPAs as a way of escaping land redistribution programmes (Langholz et al. 2000; Quintana and Morse 2005; Snijders 2012). Economic modelling indicates that land purchases for PPAs may push up property prices (Armsworth 2006), which may

exacerbate unequal land ownership by making it unaffordable for smallholder farmers, although in southern Chile, where smallholder farmers are abandoning and selling their land (Diaz et al. 2011), demand from conservationists may enable them to get good prices. Fourthly, local people may lay claim to the land and resources of PPAs controlled by wealthy or powerful individuals or organisations. Herders have been evicted from the Manyara Ranch PPA in Tanzania, and conflicts remain over distribution of costs and benefits from the ranch (Igoe and Croucher 2007; Goldmann 2011). Indigenous groups in Chile consider that part of a 115,000 hectare PPA created by one of the country's richest men (and current president) occupies land which rightfully belongs to them (Meza 2009). Furthermore, the transition of land from other uses into PPAs can disrupt the employment conditions, access to land, and use of resources for people working or living in these areas (Snijders 2012), although the same is true of state areas.

PPAs can have negative cultural impacts in addition to economic or livelihood effects. Brooks et al (2011) shows how private game reserve owners in South Africa create a particular version of history, revolving around ideas of wilderness and frontier settlement, in order to sell tourism. This vision glosses over the recent history of the area, and the culture and lives of the people who inhabit the landscape. The creation of PPAs in southern Chile by the Tompkins has provoked resentment by locals who claim the vision of the human-environment relationships within these projects undermines local culture, particularly *gaucho* identities (Jones 2012).

Yet PPAs can bring social benefits to local populations. PPAs operating as ecotourism businesses in South Africa have been shown to increase local wages and employment levels, relative to the forms of land use that they replaced, although the inverse is true for hunting based game ranches (Langholz and Kerley 2006; Snijders 2012). Some large PPAs in Chile have been established on land vacated by bankrupt forestry projects, creating jobs to replace those previously lost in forestry.

It is worth noting that all of the social impacts listed above could be equally applied to protected areas under other forms of governance. Herders in Tanzania and indigenous

groups in Chile are in conflict with state protected areas (Igoe and Croucher 2007; Meza 2009), state protected areas in South Africa are accused of producing a narrow and exclusionary vision of history (Carruthers 1996), protected areas have excluded local people throughout the world, and have been accused of neo-colonialism (West and Brockington 2006). The difference may be that PPAs are less democratically or locally accountable than protected areas under state, community or combined governance, although these protected areas may too be unaccountable and undemocratic (op. cit.).

This essay contends that, although they are private activities on private land, PPAs should be considered to have social obligations to both local communities and the broader public. Local people may consider PPAs to be as socially harmful as other large private land uses such as massive hydroelectricity projects, even if these alternatives are potentially more environmentally destructive (Jones 2012). PPAs may even be more accountable to local populations and the wider public than other private land uses. Firstly, conservation is an activity which aspires to be a public good, saving biodiversity for all, even when it takes place on private land. In claiming to do conservation, PPAs are thus tacitly claiming to be acting in the public good, and are therefore to be held to higher standards of public accountability and public benefit than other private land uses such as farms. Secondly, PPAs may have further public obligations if they receive support such as subsidies from governments in recognition of the public benefits that they provide. Thirdly, Langholz and Lassoie (2001) and Cooke (2001) argue that PPAs can be more efficient at conserving biodiversity because they are more locally accountable than state protected areas, and are less likely to be opposed, although the relationship between local support for protected areas and efficacy of conservation is far from straightforward (Holmes 2013).

5. How does the management of protected areas affect conservation beyond the boundaries of the protected area, such as through the displacement of human populations, hunting, or fishing?

I address the issue of the impacts of PPAs beyond their boundaries in two ways; firstly, by considering the direct impacts on land use and biodiversity on neighbouring areas, and secondly, by exploring the wider social and political implications of PPAs, and what this might mean for biodiversity.

PPAs may have some direct positive conservation effects on wider landscapes beyond their boundaries. Langholz and Lassoie (2001) argue that individuals or organisations may be drawn to establish PPAs on the boundaries of pre-existing protected areas, and this clustering produces larger areas under protection than PPAs could produce individually. For example, a number of PPAs have been established on the periphery of Kruger National Park in South Africa because of the economic potential of ecotourism activities, and consequently they act as a *de facto* park extension (Saayman and Saayman 2006). Even though wildlife regulations in South Africa may give PPAs incentives to resist large scale coordinated management of wildlife (Hayward et al. 2007), some contiguous PPAs have removed fences separating individual properties to form a larger conservation unit which better supports biodiversity (Druce et al. 2008). Conversely, economic modelling by Armsworth et al (2006) predicts some negative consequences from land purchases for conservation. Firstly, such purchases may displace, rather than prevent, land development, and this development could be displaced onto land of high biodiversity value which might otherwise remain undeveloped. Secondly, the creation of conservation areas may make a region more attractive to developers, leading to an inflow of investment and development which may not otherwise happen. Thirdly, land purchases for conservation may increase land prices within a region, making further purchases for conservation more difficult. Economic modelling by Lennox et al (2012) predicts a similar effect for conservation easements, as individual landowners push for NGOs to pay higher prices for easements, increasing the costs of creating easements, and limiting the potential of this tool within the region.

The broader social and political effects of PPAs, and their impact on biodiversity conservation, are important to consider, particularly if the role of PPAs was to expand.

Firstly, PPAs may allow environmentally harmful companies to “greenwash” their negative image. For example, conservationists in Chile have accused forestry companies of establishing forest PPAs in order to improve public perception of their environmental impacts. More broadly, PPAs associated with providing market solutions to conservation, either because they are businesses themselves or because they are funded by businesses, are accused of “greenwashing” capitalism in general (Büscher and Wande 2007; Igoe and Brockington 2007; Büscher 2008; Holmes 2012). They distract from capitalism’s role in driving biodiversity loss through the exploitation of natural resources to feed ever growing economies, markets, and consumers. Instead, they argue that capitalism and markets are the solution. Rather than saving biodiversity by consuming less, they argue that to save biodiversity, more consumption of the right things, such as ecotourism holidays or the products produced by companies which sponsor PPAs, is needed.

The growth of PPAs may also lead to forms of moral hazard in conservation. A rising profile for PPAs may lead to states reducing their investment in protected areas, with the expectation that the private sector will replace it, part of wider shifts towards neoliberal conservation in which states are rolling back their direct involvement in saving biodiversity, whilst facilitating market and civil society involvement (Igoe and Brockington 2007). As discussed in section 2, PPAs may only protect certain kinds of places and certain forms of biodiversity, and moves towards greater roles for PPAs may leave other areas unprotected. An over dependence on markets and private sector actors may only protect biodiversity which generates enough income to cover the costs of conservation. As Zimbabwean President Robert Mugabe argued, species must “pay to stay”, but not all species are able to do so. Markets in species can be ineffective for their conservation, or even counterproductive (Ehrenfeld 2008). Despite these potential dangers, it is worth noting that the great majority of protected areas are not under private governance, and that a large number of PPAs are motivated not by markets and profits, but by altruism (Wallace, 2005, Pasquini et al, 2011, Adams and Hodge, 2012).

Conclusion

It is important to recognise that all the issues discussed above are not unique to PPAs, but also apply to protected areas under other forms of governance. The difference is the degree to which they apply. PPAs may, compared to state, co-managed or community protected areas, make a particularly important contribution to the conservation of biodiversity by adding to the total area under protection, by protecting places which are relatively neglected by other forms of protected area, and by potentially being more effective and efficient than other forms of governance. Yet they may be more exposed to problems such as becoming distracted from their conservation mission by income generating activities, their impact on land prices and development beyond their boundaries, concerns over greenwashing, and the consequence of this for biodiversity. Nevertheless, when evaluating the role of PPAs in saving biodiversity, it is important to consider what alternative forms of land use exist for sites currently under private protection, and the environmental (and social) impacts that these might have. One would expect a PPA to be more likely to produce positive environmental, and perhaps even social, impacts than a forestry enterprise or agriculture. Given that it is not clear that PPAs are any more effective, efficient, or socially beneficial than other forms of protected area, or that they have fewer negative consequences beyond their boundaries, they should be considered as an addition, rather than a substitute, to other forms of protected area.

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References

Adams, V. M., and K. Moon. 2013. Security and equity of conservation covenants: Contradictions of private protected area policies in Australia. Land Use Policy **30**:114-119.

Armsworth, P. R., and J. N. Sanchirico. 2008. The effectiveness of buying easements as a conservation strategy. Conservation Letters **1**:182-189.

Bernstein, J., and B. A. Mitchell. 2005. Land trusts, private reserves and conservation easements in the United States. Parks **15**.

Brooks, S., M. Spierenburg, L. O. T. Van Brakel, A. Kolk, and K. B. Lukhozi. 2011. Creating a commodified wilderness: Tourism, private game farming and 'third nature' landscapes in Kwazulu-Natal. Tijdschrift voor economische en sociale geografie **102**:260-274.

Büscher, B., and W. Whande. 2007. Whims in the winds of time: Emerging trends in biodiversity conservation and protected area management. Conservation and Society **5**:22-43.

Büscher, B. E. 2008. Conservation, Neoliberalism, and Social Science: a Critical Reflection on the SCB 2007 Annual Meeting in South Africa. Conservation Biology **22**:229-231.

Carruthers, J. 1994. Dissecting the myth: Paul Kruger and the Kruger National Park. Journal of Southern African Studies **20**:263-283.

Carter, E., W. M. Adams, and J. Hutton. 2008. Private protected areas: management regimes, tenure arrangements and protected area categorization in East Africa. Oryx **42**:177-186.

Cooke, B., W. T. Langford, A. Gordon, and S. Bekessy. 2011. Social context and the role of collaborative policy making for private land conservation. Journal of Environmental Planning and Management:1-17.

Corcuera, E., C. Sepúlveda, and G. Geisse. 2002. Conserving Land Privately: Spontaneous Markets for Land Conservation in Chile in S. Pagiola, J. Bishop, and N. Landell-Mills, editors. Selling forest environmental services: Market-based mechanisms for conservation and development. Earthscan, London.

Cousins, J. A., J. P. Sadler, and J. Evans. 2008. Exploring the Role of Private Wildlife Ranching as a Conservation Tool in South Africa: Stakeholder Perspectives.

de Groot, J., and S. R. Bush. 2010. The potential for dive tourism led entrepreneurial marine protected areas in Curacao. Marine Policy **34**:1051-1059.

Díaz, G. I., L. Nahuelhual, C. Echeverría, and S. Marín. 2011. Drivers of land abandonment in Southern Chile and implications for landscape planning. Landscape and Urban Planning **99**:207-217.

Druce, H. C., K. Pretorius, and R. Slotow. 2008. The response of an elephant population to conservation area expansion: Phinda Private Game Reserve, South Africa. Biological Conservation **141**:3127-3138.

Dudley, N. 2008. Guidelines for Applying Protected Area Management Categories. IUCN, Gland, Switzerland.

Ehrenfeld, D. 2008. Neoliberalization of Conservation. Conservation Biology **22**:1091-1092.

Figgis, P., D. Humann, and M. Looker. 2005. Conservation on private land in Australia. Parks **15**.

Fisher, J. R. B., and B. Dills. 2012. Do Private Conservation Activities Match Science-Based Conservation Priorities? PLoS ONE **7**:e46429.

Francis, J., A. Nilsson, and D. Waruinge. 2002. Marine Protected Areas in the Eastern African Region: How Successful Are They? AMBIO: A Journal of the Human Environment **31**:503-511.

Gallo, J. A., L. Pasquini, B. Reyers, and R. M. Cowling. 2009. The role of private conservation areas in biodiversity representation and target achievement within the Little Karoo region, South Africa. Biological Conservation **142**:446-454.

Goldman, M. 2011. Strangers in their own land: Maasai and wildlife conservation in Northern Tanzania. Conservation and Society **9**:65-79.

Hannah, L. 2006. Governance of private protected areas in Canada: Advancing the public interest? Department of Geography. University of Victoria, Victoria.

Hayward, M. W., et al. 2007. The reintroduction of large carnivores to the Eastern Cape, South Africa: an assessment. Oryx **41**:205-214.

Hodge, I. D., and W. M. Adams. 2012. Neoliberalisation, rural land trusts and institutional blending,. Geoforum.

Holmes, G. 2012. Biodiversity for Billionaires: Capitalism, Conservation and the Role of Philanthropy in Saving/Selling Nature. Development and Change **43**:185-203.

Holmes, G. 2013. Exploring the relationship between local support and the success of protected areas. Conservation and Society **11**.

Igoe, J., and D. Brockington. 2007. Neoliberal conservation: A brief introduction. Conservation and Society **5**:432-449.

Igoe, J., and B. Croucher. 2007. Conservation, Commerce, and Communities: The Story of Community-Based Wildlife Management Areas in Tanzania's Northern Tourist Circuit. Conservation and Society **5**:534-561.

Jones, C. 2012. Ecophilanthropy, Neoliberal Conservation, and the Transformation of Chilean Patagonia's Chacabuco Valley. Oceania **82**:250-263.

Knight, R. L. 1999. Private Lands: The Neglected Geography. Conservation Biology **13**:223-224.

Krug, W. 2001. Private Supply of Protected Land in Southern Africa: A Review of Markets, Approaches, Barriers and Issues. World Bank / OECD International Workshop on Market Creation for Biodiversity Products and Services, Paris.

Langholz, J. 1999. Conservation cowboys: privately owned parks and the protection of tropical biodiversity. Cornell University, Ithaca, New York.

Langholz, J., and G. Kerley. 2006. Combining conservation and development on private lands: an assessment of ecotourism-based private game reserves in the Eastern Cape. . Centre for African Conservation Ecology.

Langholz, J., and W. Krug. 2003. Private protected area action plan: WPC Governance Stream, Parallel Session 2.5. World Parks Congress, Durban.

Langholz, J., and J. Lassoie. 2001. Perils and promise of privately owned protected areas. Bioscience **51**:1079-1085.

Langholz, J., J. Lassoie, and J. Schelhas. 2000. Incentives for Biological Conservation: Costa Rica's Private Wildlife Refuge Program. Conservation Biology **14**:1735-1743.

Lennox, G., M. Dallimer, and P. Armsworth. 2012. Landowners' ability to leverage in negotiations over habitat conservation. Theoretical Ecology **5**:115-128.

Mascia, M. B., and S. Pailler. 2011. Protected area downgrading, downsizing, and degazettement (PADDD) and its conservation implications. Conservation letters **4**:9-20.

Merenlender, A. M., L. Huntsinger, G. Guthey, and S. K. Fairfax. 2004. Land Trusts and Conservation Easements: Who Is Conserving What for Whom? Conservation Biology **18**:65-76.

Meza, L. E. 2009. Mapuche Struggles for Land and the Role of Private Protected Areas in Chile. Journal of Latin American Geography **8**:149-163.

Myers, N., R. Mittermeier, C. Mittermeier, G. d. Fonseca, and J. Kent. 2000. Biodiversity hotspots for conservation priorities. Nature **403**:853-858.

Ochoa-Ochoa, L., J. N. Urbina-Cardona, L.-B. Vázquez, O. Flores-Villela, and J. Bezaury-Creel. 2009. The Effects of Governmental Protected Areas and Social Initiatives for Land Protection on the Conservation of Mexican Amphibians. PLoS ONE **4**:e6878.

Pasquini, L., R. M. Cowling, C. Twyman, and J. Wainwright. 2010. Devising Appropriate Policies and Instruments in Support of Private Conservation Areas: Lessons Learned from the Klein Karoo, South Africa. Conservation Biology **24**:470-478.

Pasquini, L., J. A. Fitzsimons, S. Cowell, K. Brandon, and G. Wescott. 2011. The establishment of large private nature reserves by conservation NGOs: key factors for successful implimentation. Oryx **45**:373-380.

Pauchard, A., and P. Villarroel. 2002. Protected Areas in Chile: History, Current Status, and Challenges. Natural Areas Journal **22**:318–330.

Pliscoff, P., and T. Fuentes-Castillo. 2011. Representativeness of terrestrial ecosystems in Chile's protected area system. Environmental Conservation **38**:303-311.

Quintana, J., and S. Morse. 2005. Social interactions and resource ownership in two private protected areas of Paraguay. Journal of Environmental Management **77**:64-78.

Rissman, A. R., and V. Butsic. 2011. Land trust defense and enforcement of conserved areas. Conservation Letters **4**:31-37.

Saayman, M., and A. Saayman. 2006. Estimating the Economic Contribution of Visitor Spending in the Kruger National Park to the Regional Economy. Journal of Sustainable Tourism **14**:67-81.

Sanchez, G. 2006. La Patagonia Vendida. Editorial Marea, Buenos Aires.

Schlager, E., and E. Ostrom. 1992. Property-Rights Regimes and Natural Resources: A Conceptual Analysis. Land Economics **68**:249-262.

Sims-Castley, R., G. Kerley, B. Geach, and J. Langholz. 2005. Socio-economic significance of ecotourism-based private game reserves in South Africa's Eastern Cape Province. Parks **15**.

Snijders, D. 2012. Wild property and its boundaries – on wildlife policy and rural consequences in South Africa. The Journal of Peasant Studies **39**:503-520.

Sutherland, W. J., et al. 2009. One Hundred Questions of Importance to the Conservation of Global Biological Diversity. Conservation Biology **23**:557-567.

Sydee, J., and S. Beder. 2006. The Right Way to Go? Earth Sanctuaries and Market-based Conservation. Capitalism Nature Socialism **17**:83-98.

UNEP-WCMC. 2012. The World Database on Protected Areas (WDPA) Cambridge, UK. Available at:www.protectedplanet.net

Wallace, G. N., D. M. Theobald, T. Ernst, and K. King. 2008. Assessing the Ecological and Social Benefits of Private Land Conservation in Colorado. Conservation Biology **22**:284-296.

West, P., and D. Brockington. 2006. An Anthropological Perspective on Some Unexpected Consequences of Protected Areas. Conservation Biology **20**:609-616.

West, P., and J. Carrier. 2004. Ecotourism and authenticity: Getting away from it all. Current Anthropology **45**:483-498.

Zoomers, A. 2010. Globalisation and the foreignisation of space: seven processes driving the current global land grab. Journal Of Peasant Studies **37**:429-447.