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Sustainability entrepreneurship in marine protected areas

Simon R. Bush, Mariska Bottema, Jan Joris Midavaine and Eleanor Carter

Abstract

So called 'entrepreneurial marine protected areas' are one way in which private actors are setting and enforcing control over spatially contiguous marine habitats. These entrepreneurs fulfil both environmental and social outcomes, providing a sustainable source of funding for conservation and restoration activities, as well as interacting with communities dependent on these resources. In doing so they contribute to the conservation of public resources. But unlike state-led management, the success of these entrepreneurs is dependent on market forces, giving them access to sources of revenue traditionally limited to private sector enterprises, whilst concurrently incurring risks from market fluctuations that potentially threaten their durability in the long term. Through three case studies from Indonesia, Belize and Tanzania this chapter explores the ways in which these actors exploit opportunities to create innovative spatially delimited private governance arrangements around marine resources, and the extent to which the state has facilitated or hindered their activities. In doing so we discuss the potential of these private actors for establishing the necessary authority for long-term conservation.

Introduction

The involvement of private actors in marine conservation has steadily increased in recent decades as the need for sustainable funding models has become apparent (Dixon et al., 1993; Colwell, 1998; Balmford et al., 2004; Christie and White, 2007). In these so-called 'entrepreneurial marine protected areas' (EMPAs) (Colwell, 1997), private-actors seek business opportunities that fund a combination of conservation activities and local livelihood (Colwell, 1998; de Groot and Bush, 2010; Bottema and Bush, 2012). Building on the emerging perspective of Shepherd and Patzelt (2011), these EMPAs appear to characterise the role of entrepreneurial action as a catalyst for sustaining or protecting ecosystems by "providing economic and non-economic gains for investors, entrepreneurs and societies" (p. 138).

The type of entrepreneurial intervention in EMPAs ranges from collecting diver fees that directly fund park management (Dixon et al., 1993; Tongson and Dygico, 2004; de Groot and Bush, 2010), to designing and implementing co-management arrangements in state designated parks (Teh et al., 2008), and to private tenure over spatially delimited marine habitat (Svensson et al., 2010). While the specific drivers for private sector involvement differ per case, one constant challenge they face is maintaining a requisite level of legitimacy and authority to practice conservation. We argue (based on earlier work, see Bottema and Bush, 2012) that the long-term 'durability' of their entrepreneurial activity, including the institutions they establish around the EMPAs, is dependent on continued support of both states actors and local communities.

Based on our earlier work in three EMPAs in South-East Asia, Central America and Africa (see Figure 1), this chapter explores how diverse entrepreneurial approaches have identified and exploited opportunities for spatially delimited, or 'territorial', private conservation of marine resources. In doing so we provide a meta-analysis of the cases to identify a generalizable set of conditions under which sustainability entrepreneurs are able to identify and exploit opportunities for generating individual and communal benefits, as well as consolidate their activities into long-term conservation activities.

The following section provides an overview of entrepreneurialism and marine conservation where we outline key conditions for exploitation, consolidation and durability of conservation-related entrepreneurial activity. We then detail three diverse case studies of EMPAs in Indonesia, Belize and Tanzania using a mix of primary and secondary data (recent studies by the authors include Bottema and Bush, 2012; Nordlund et al., 2013; Midavaine, 2014). Based on this cross-case comparison we then discuss the challenges of entrepreneurs to maintain private authority for long-term conservation.

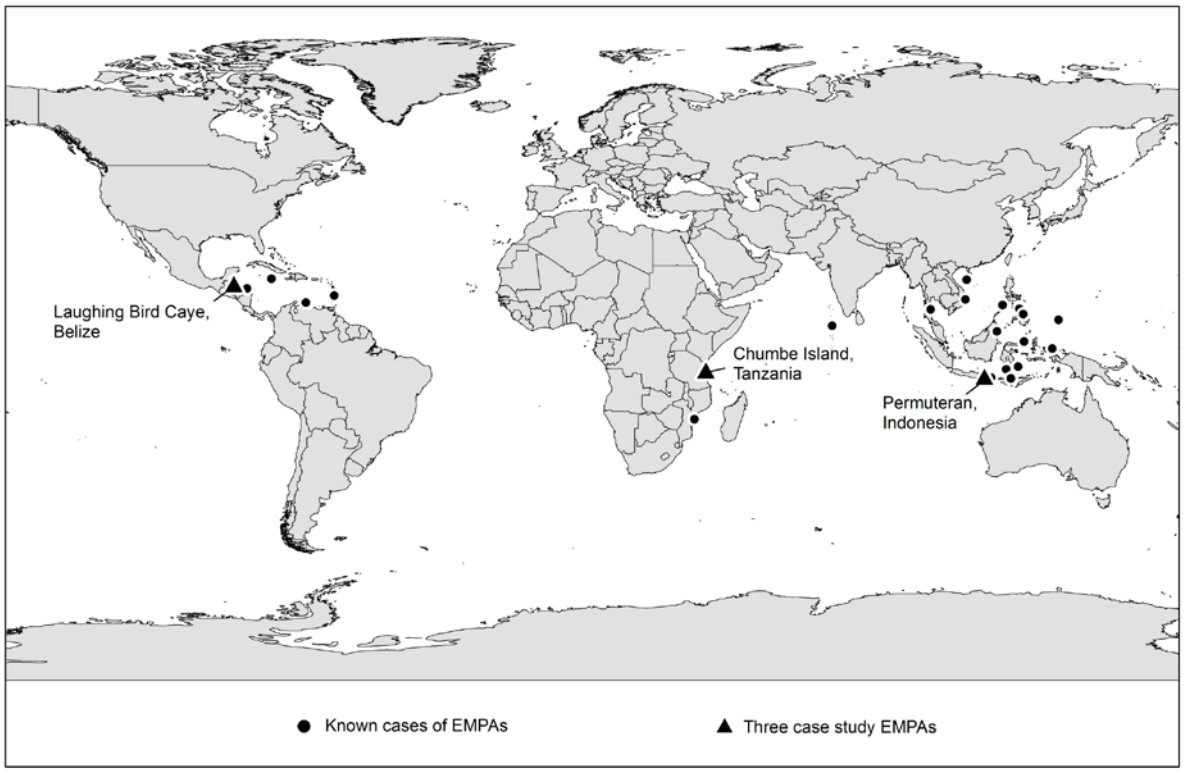

Figure 1. Map of three case studies and all other recorded EMPAs.

Marine sustainability entrepreneurialism

The emergence of EMPAs

Reflecting the slow progress made towards a establishing a global network of MPAs, the Convention on Biodiversity recently shifted its ambition of 10% coverage of the world's oceans from 2012 to 2020 (see Rife et al., 2013). The effectiveness of established parks have been questioned; with many labelled as 'paper parks'. At local scales demands for coastal resources often exceed the capacity of those habitats to maintain a requisite level of biodiversity (Selig and Bruno, 2010). As variously argued (e.g. Mascia et al., 2010; Selig and Bruno, 2010; Chuenpagdee et al., 2013), meeting the national and global demands for MPA establishment remains firmly linked to the local contexts within which conservation activities are embedded.

Although a more recent phenomenon than terrestrial-based private-led conservation (Norton, 2000), the role and scope of EMPAs has increased and diversified since being first introduced. Colwell's (1997) initial description involved networks of small-scale protected areas managed by partnerships between local communities and private operators which "have a vested economic interest in promoting abundant marine life'' (p.110). He indicated that these discrete pockets of protected habitat can be developed within or in combination with state-led MPAs. Private-sector involvement is therefore seen as: (1) A short-term intervention that can stimulate the development of state-led protected areas by raising local awareness and building local capacity (Colwell, 1998); (2) A way of providing alternative sources of income to local communities, thereby reducing extractive pressure on marine resources (Dixon et al., 1993; Christie and White, 2007); and/or (3) a long-term means of establishing economic activities around marine conservation that can provide a durable source of funding (Bottema and Bush, 2012).

The small number of studies of EMPA-like conservation initiatives have analysed the role of hotels in establishing no-take areas (e.g. Svensson et al., 2009), dive shop operated reef conservation (e.g. de Groot and Bush, 2010), public-private partnerships (e.g.Teh et al., 2008) and user fee systems (e.g. Dixon et al., 1993; Tongson and Dygico, 2004; Uyarra et al., 2010). While the majority of these studies have focused on ecological issues, co-management and the economics of private intervention, there is a dearth of sociological analysis on the role entrepreneurs play in marine conservation.

Entrepreneurial exploitation, consolidation and durability

Applied to sustainability, entrepreneurship refers to a process through which individuals discover and exploit individual business opportunities that are oriented towards changing the consumption or management of natural and/or communal environment, which in turn provides development gains for others (Patzelt and Shepherd, 2011; Schaltegger and Wagner, 2011). Here we propose a framework to evaluate the dynamic process of entrepreneurial interventions in territorial based conservation such as EMPAs (see Figure 2) by dividing sustainability entrepreneurialism into three analytical phases – exploitation, consolidation and durability.

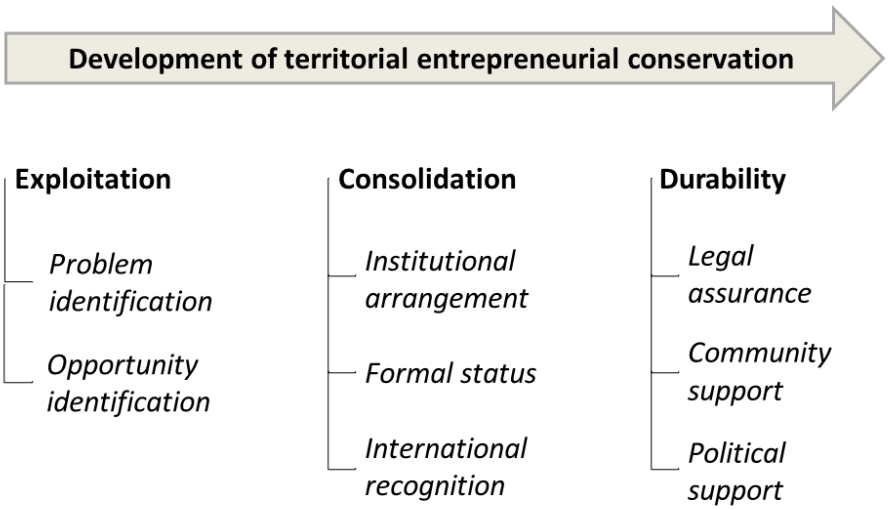

Figure 2. Dynamic framework for understanding the development of area based entrepreneurial conservation.

The *exploitation* of any opportunity for sustainability entrepreneurship begins with a 'problem' defined by any combination of environmental and social factors. For example, a problem related to environmental issues might be characterised by a decline in an ecological dimension such as biodiversity, or an increase in material flows such as effluent. However, underlying these declines or inputs are often institutional or market failures; such that environmental problems result from weak regulation or adverse allocation of resources (Cohen and Winn, 2007). Whether an entrepreneur responds to these problems is dependent on the extent to which they can identify and exploit an opportunity to create new approaches for reaching a sustainability goal. Following Eckhardt and Shane (2003), these opportunities are often related to the introduction of new goods, services or markets or organisational methods as means to the ends of improved sustainability. By examining the emergence of EMPAs, we compare the conditions that enable entrepreneurs to exploit conservation opportunities.

Once established, the *consolidation* of a conservation based entrepreneurial activity also depends on the extent to which it can be institutionally embedded. Consolidation in this sense refers to the type of institutional arrangement, including the degree of support received from the state or communities, for creating varying degrees of exclusion to habitat or biological resources within that habitat (Pacheco et al., 2010; Bennett and Dearden, 2014). The extent of exclusion may vary from full enclosure of a habitat with state support, to partial or seasonal exclusion established through usufruct rights. Formal recognition from the state, in customary tenure arrangements and/or in co-management arrangements all contribute to the legitimacy of entrepreneurial activity and therefore the degree to which entrepreneurs can establish

conservation rights (e.g. Lambooy and Levashova, 2011; Lamers et al., 2014). In addition, entrepreneurial activity can be further consolidated if an entrepreneur receives international recognition and support, ranging from intergovernmental funding or status to professional accreditation (e.g. through scuba diving associations).

Finally, *durability* refers to the conditions that allow sustainability entrepreneurs to persist in a given social and institutional setting, and their capacity to create and shape change towards environmental conservation (Busenitz et al., 2003). Given its relational nature the private authority of entrepreneurs is largely determined by their capacity to set new norms and practices for environmental conservation, which is in turn bound to their ability to (re)produce the trust of other societal and state actors (Partzsch and Ziegler, 2011; Green, 2013). Direct state support through legal assurance of an entrepreneurs status, and conversely legal compliance, is the most direct and durable means of establishing and maintaining trust in their activities. However, without a clear legal status entrepreneurial activities can also be supported through either explicit or tacit community support (Smith and McElwee, 2013). Entrepreneurs may be able to gain political support for their activities, allowing them to persist with activities even if their legal status remains ambiguous.

In the rest of this chapter we apply the above framework to the experiences of three EMPAs embedded in different natural, social and political settings. In doing so we identify the conditions under which private actors are able to identify, exploit and exercise sustainability entrepreneurship.

Comparative experiences with EMPAs

Chumbe Island Coral Park, Tanzania

Chumbe is a 22 hectare coral island located 12 km off the southwest coast of Zanzibar in Tanzania. In 1990 an expatriate consultant worked on the Zanzibar Integrated Land and Environmental Management Project which proposed immediate action on environmental education for communities who depended on marine resources and for staff of the Department of Environment (Rojas-Laserna, 2011). However, government support for both marine protection and environmental education in Zanzibar was limited. Instead, responding to the release of state coastal leases for tourism development, the entrepreneur saw an opportunity to *exploit* a link between education and conservation through a self-funded eco-lodge. The result was Chumbe Island Coral Park Ltd. (CHICOP), gazetted by the Government of Zanzibar in 1994 as the first private-led MPA established in Tanzania.

The *consolidation* of CHICOP took place over a number of years and required ongoing high level political support (Nordlund et al., 2013). Although the opportunity came partly from government policy aimed at promoting tourism development on Zanzibar, the proposal to establish a privately run MPA initially faced resistance from local fishers and some local government officials. In response the entrepreneur approached the Prime Minister's office on the importance of education and conservation, and successfully gained support for the lease (Rojas-Laserna, 2011). This support was further strengthened when the park was listed as a

gazetted park and again when the classified as a Category II protected area by the International Union for the Conservation of Nature (Nordlund et al., 2013).

Despite growing recognition of the EMPA, private tenure over the island and protection of the surrounding waters remains vulnerable given that leases issued under the 1986 Investment Protection Act can be revoked by the State "with relative ease" (Riedmiller, 2003). Difficulties in re-negotiating leases for the island and adjacent marine area, every thirty three and ten years respectively, reflects this challenge (Riedmiller and Carter, 2001b). As private tenure of public resources has been questioned CHICOP has stressed the link between effective protection of marine resources as a condition for the growth and sustainability of quality tourism (Rojas-Laserna, 2011). CHICOP has also actively developed a range of local and national social and political relations, with the express intent of further strengthening long term tenure over the EMPA.

A range of strategies have been adopted to strengthen the relations which grant CHICOP the ongoing legitimacy and authority to operate (see Riedmiller and Carter, 2001a; Riedmiller, 2003; Nordlund et al., 2013). An advisory committee including nine representatives from adjacent villages, research and government departments is held twice a year. In addition, CHICOP releases regular activity reports and a biannual newsletter. Institutional links are also made to local and foreign research institutes. Relations with surrounding communities have also been strengthened through regular consultation meetings, fisher association support (including provision of an in-water rescue service for fishers in distress) and the proactive employment of local community members in the project. Building on the education goals of the entrepreneur, the program funds and manages visits from schools throughout Zanzibar, has established school environment clubs, and fisher associations. Finally, a historic lighthouse functions as an important maritime navigation system, managed by CHICOP staff in co-operation with the Harbour Authority.

The wider legitimacy of CHICOP was also consolidated through investment in the environmental credentials of the park - including the development of eco-touristic activities, the use of eco-architecture and eco-technologies in lodge design and construction. The park has also received considerable international recognition as an exceptional example of private sector led marine conservation by the Nature Conservancy and the European Union, and has received awards from groups including the United Nations and National Geographic.

Despite its success there remain a series of threats to the ongoing *durability* of CHICOP. The entrepreneur herself argues that the long terms prospect of the EMPA depends on the ongoing willingness of the government to extend the management agreements (Reidmiller, 2008). CHICOP has no legal assurance that a renewal of their leases will occur, and they are also made vulnerable by the Zanzibar Investment Act of 1986 which affords no protection against expropriation by the government (Nordlund et al., 2013). Management agreements and tenure arrangements are held through two key lease agreements: A Closed Forest Reserve Agreement (33 years renewable, currently valid to 2027), and a Reef Sanctuary Agreement (10 years renewable, currently valid to 2024). While the relations established with government and the local community puts CHICOP in a strong position to renew the leases, a

change in government or political will leave the future of the EMPA open to a new round of discussion.

Pemuteran, Indonesia

Pemuteran is a small fishing village in the North West of Bali, Indonesia's most popular island tourism destination. Pemuteran's tourism industry developed in the early 1990s (Piskurek, 2001; Goreau et al., 2008). Illegal dynamite and cyanide fishing methods were still being employed by local fishermen. Recognizing the resulting reef degradation, two entrepreneurs, a Balinese hotelier and an expat who established Pemuteran's first dive shop, began communicating to fishermen about the consequences of their activities. Recognising both a problem and opportunity to *exploit* for entrepreneurial activity, the expat incorporated coral repair into dives he offered his clients. Influenced by the awareness raised by the entrepreneurs, in 1995 the village community declared a local ban on illegal fishing methods, appointed beach guards to enforce this, and declared a No Take Zone (NTZ) of 1ha for which an entry fee was charged to tourists.

In 1998 the Asian economic crisis resulted in many displaced Indonesian workers turning to fishing, bringing illegal fishing practices back to Pemuteran. Recognising the need to conserve coral suffering from both bleaching and overfishing a Balinese entrepreneur decided to invest in Biorock, a coral restoration technology developed by the Global Coral Reef Alliance (GCRA) (Goreau et al., 2008). In 2000 numerous hotels invested in Biorock coral nurseries, involving the local community in their construction. Management and maintenance of these nurseries was consolidated under the NGO *Yayasan Karang Lestari*. The community subsequently appointed a traditional community-based security unit to reinforce the national ban on destructive fishing practices and to protect the newly established NTZ where the coral nurseries were located. Fishermen were said to not be sufficiently included in the decision-making process leading to creation of this NTZ, so this development initially faced more resistance than the previously appointed NTZ. Eventually however, the fishermen came to accept this new protected area.

Marine conservation institutions in Pemuteran are in place largely due to efforts of a few independently acting entrepreneurs. The *consolidation* of the EMPA comprises several informal institutions which work toward common goals, but appear to operate individually. The dive sector is also not formally organized, without structural communication and no formalized price agreement. However, the dive shops cater to different niches. It appears that competitive behavior, which can lead to overuse and degradation of reefs (e.g. Roman et al., 2007), has thus been avoided.

The private sector gained legitimacy through financial and non-financial investments in the local community. Some dive shops pay fishermen for using their area, some supply the fishermen with fish aggregating devices. The private sector has also invested in cultural assets and activities such as funding restoration of temples, which has been important for building support amongst the local community. Gaining support of the village's religious leaders and employing locals has been beneficial in exercising social control over the community in terms of resource use. It can be argued that Biorock technology has also played a role in

legitimating entrepreneurial conservation activities. Its presence produces tangible proof of private sector investments in conservation, provides local employment and educates local inhabitants and tourists about the need for marine conservation.

The reefs have largely remained common property as there has only been minimal enclosure of areas. As a result the private sector has been able to exercise marine conservation without marginalizing original resource users. However, norms and rules established by the private sector have not been formalized into government regulation, or into du jure rights over these areas. Pemuteran is designated as a Daerah Parawisata Laut (Sea Tourism Area) by provincial law; regency law states that the area has to exercise a conservation effort but does not state specifically how. In Pemuteran's village decree it is stated that the area designated for tourism can only be used for tourism, which indirectly supports designation of the NTZ, but grants the area no official protected area status. The private sector has formed two informal semi-voluntary agreements with fishermen in cooperation with the village: a local agreement to enforce a national ban on destructive fishing practices and the creation of a de facto NTZ. The collapse of the previous equally informal agreements in 1998 due to effects of the economic crisis leads one to question the long-term *durability* of this EMPA as it currently stands.

The private sector's relations with the original resource owners - Pemuteran village and fisherman - appear to be based on mutual cooperation largely due to initial efforts of the two initial individual entrepreneurs to build trust. These two entrepreneurs remain key individuals for management of the EMPA due to their leadership function and their connecting role in relations with local stakeholder groups. This brings with it a risk of overdependence and consequently leads one to question the EMPAs long-term durability even further.

Laughing Bird Caye, Belize

Since the 1980s, Placencia has grown to become one of the fastest growing tourism destinations in Belize. Tourism activity began with tours to the surrounding cayes (islands) by local fishermen. Most tourists were brought to Laughing Bird Caye (LBC), a long and narrow island of 0.57 ha 11 miles of the coast of Placencia. In 1990 fishermen and pioneering tour guides found out LBC was being surveyed to be sold and developed. Recognising the impact that this development would have to tourism and fishing in the area, a resident expat owner of a local hotel, fishermen and other concerned community members established the Friends of Laughing Bird Caye Committee. The Committee was an means for the entrepreneur to engage and *exploit* an opportunity for tourism and conservation. With a successful petition among the inhabitants of Placencia the Committee established a voluntary ban on fishing in the surrounding waters and camping on the caye. Significant lobbying further resulted in protection of LBC as a national park under the 1981 National Park System Act of the Forest Department in 1991 (Wildtracks, 2010). National parks (NP) in Belize are strictly non-extractive reserves "for the protection and preservation of natural and scenic values of national significance for the benefit and enjoyment of the general public" (Government of Belize, 2000, p. 6).

At the national level an integrated coastal zone management approach for the protection of Belize's reefs was envisioned. A Coastal Zone Management Unit was established under the

Fisheries Department in 1990 and followed up with the UNDP/GEF funded Coastal Zone Management Project in 1993. The Committee received funding from this project to develop a management plan for LBCNP.

In 1996 the national park was expanded as part of the Belize Barrier Reef Reserve System, a collective UNESCO World Heritage Site. As a result the entire Laughing Bird Caye Faro, an elongated ridge of reef covering approximately 12 square nautical miles was *consolidated* by gaining a formal national legal status (Vellos, 2003). This development was welcomed by the inhabitants of Placencia undergoing a transition toward becoming more tourism oriented. Despite the involvement of the Forest Department, there was insufficient capacity from the government and the Committee to adequately deal with day-to-day management. Instead responsibility was given to the newly formed NGO Friends of Laughing Bird Caye, which took on the development of the management plan, as well as ongoing monitoring and enforcement. The management of the EMPA was further consolidated with an agreement signed with the Forest Department in 2001, receiving de jure rights and official recognition as a co-manager of LBCNP. Soon after external funds from UNDP, GEF, World Wide Fund for Nature (WWF) and The Nature Conservancy (TNC) allowed those business owners originally involved in the Committee to step aside and be replaced by a professional reserve manager and ranger who were made special constables of the state police force (Vellos, 2003).

The *durability* of the MPA has been facilitated by the co-management arrangement, given that the private sector has been able to maintain an active role in the management and maintenance of the MPA as a tourism destination. This caused the NGO, now known as the Southern Environmental Association, to function as a platform to negotiate the link between tourism and conservation. It allowed the private sector to maintain influence and build facilities like pick-nick tables and a barbeque, though restricted to develop exclusive rights. Similar to the Pemuteran case, the no-take status of LBCNP appeared to provide a suitable investment environment for a coral restoration initiative. This initiative, known as Fragments of Hope, is run by a resident expat marine biologist and is funded by among others WWF and the World Bank (Bowden-Kerby and Carne, 2012).

Historically co-management appeared to be a successful concept to solve government departments lack of capacity and channel funding from international conservation organizations (Young and Horwich, 2007). However, with over 94 protected areas (Government of Belize, 2005), accounting for 36% of Belize's national territory in 2005, legislation, mandates, roles and responsibilities started to get unclear (Meerman, 2005). In response to this, policies were revised and (re-)formulated leading to the establishment of the National Protected Areas System Plan (NPASP) in 2005, demanding co-management organizations to sign a new co-management agreement in November 2012. Signing the agreement increases state control and limits NGO autonomy, and in particular risks alteration of arrangements made between co-management organizations and the private sector. Refusing to sign, makes activities carried out by co-management organizations illegal. With some exceptions most co-management organizations still refused to sign by 2013.

Discussion

The three cases present diverse but comparable experiences on how entrepreneurs establish and consolidate EMPAs based on exploitation, consolidation and durability. In summary we see that: 1. Entrepreneurs exploit business opportunities that are wholly dependent on conservation outcomes; 2. They consolidate institutional arrangements by gaining recognition by states and/or local communities; and 3. The long-term durability of EMPAs is dependent on maintaining social relations with civil society groups, state actors and local communities. Seen as such EMPAs do not fill short-term 'gaps', but can provide long-term strategies that states might be able to coordinate for wider communal returns. Based on these observations and linking the work of Lambooy and Levashova (2011) and Lamers et al. (2014), we now compare the three cases (see Table 1) and discuss the conditions required for entrepreneurs to establish the legitimacy and ultimately authority necessary to persist with the conservation of public resources over the long-term.

Overall, the three cases show strong variation in how entrepreneurs identified and exploited opportunities to develop their EMPA. But common to all cases, entrepreneurial exploitation of conservation opportunities require changes in politics, policy and/or regulation for redistributing value to support improved (privately-led) environmental stewardship (following Shepherd and Patzelt, 2011). While in Pemuteran there was a clear link between reef degradation and restoration, the problems identified in the other two cases were in response to perceived 'institutional failures' (Dean and McMullen, 2007). In Chumbe, there was a lack of awareness around marine protected areas and in Laughing Bird Caye the entrepreneurial action was a form of resistance against externally driven uncontrolled tourism development. By exploiting opportunities to establish territorial control over these areas, entrepreneurs were able to generate individual and communal benefits. However, the cases also demonstrate that the overall effectiveness of these territorial approaches to conservation required substantial efforts to create and consolidate their position with both the state and local communities.

The approach and extent to which entrepreneurs can establish EMPAs that receive state and/or international support, differ substantially. Both CHICOP and Laughing Bird Caye have received recognition from national government by establishing entrepreneur-led co-management arrangements (cf. von Heland et al., 2014). In the case of CHICOP this was done by inviting government and local community representatives to join its advisory committee . Reflecting a multi-level strategy for sustainable entrepreneurialism (Dyerson and Preuss, 2012), CHICOP has also consolidated political support by receiving formal listing as a national MPA in addition to international level recognition from IUCN. Similarly, in Laughing Bird Caye legitimacy has been established with both the community and government through a formally recognized co-management agreement with the forest department. In contrast, the case of Pemuteran demonstrates that in the absence of national recognition, informal agreements with the local community and only limited international support can also enable entrepreneurs to consolidate their conservation activities. However, the consequence appears to be less rigid territorial control, which may benefit communities, but also result in trade-offs in terms of conservation.

Table 1. Comparison of exploitation, consolidation and durability of three entrepreneurial marine protected areas

Conditions		Chumbe Island, Tanzania	Permuteran, Bali, Indonesia	Laughing Bird Caye, Belize
Exploitation	Problem identification	• Lack of environmental education and Lack of marine conservation areas	• Reef degradation through illegal fishing methods and coral bleaching events	• Coordinated opposition to privatization
	Opportunity identification	• Opportunity for establishment of marine conservation area to support education, self-financed through resort development established through tourism and investment legislation	• Opportunity to re-establish 'no take area' around Biorock structures for dive tourism	• Opportunity for establishing no take area and dive operation on the coast of Placencia
Consolidation	Institutional embedding	• Formal lease; Advisory committee with input from communities and state	• Minimal enclosure leading to ongoing cooperation with local communities	• Co-management arrangement established with the forest department
	Formal status	• Gazetted as nationally listed Marine Protected Area	• Designated by provincial law as Daerah Parawisata Laut (Sea Tourism Area). Village	• Gazetted as national park • Part of Belize MPA network

			decree states areas which can only be used for tourism purposes	
	International recognition	• International funding and awards • IUCN listed protected area	• Known a largest Biorock reef	• International funding • One of seven MPAs of Belize Barrier Reef World Heritage Site
Durability	Legal assurance	• No legal assurance of lease renewal	• No legal assurance of access and investment	• Weak assurance; national level renegotiation of co-management agreements
	Community support	• Medium to high community support	• Variable community support	• Strong community support
	Political support	• Renewal of lease vulnerable to national and local political change	• Recognition through visits of various government officials	• The MPA and its management should comply with guidelines prescribed in the National Protected Areas Policy and System Plan.

Finally, these findings also point to how the durability of 'entrepreneurial authority' (Green 2013) takes shape and is challenged. All three cases demonstrate that the long-term durability of entrepreneurial activity to overcome implementation and enforcement failures is dependent on their perceived legitimacy by both the state, who grant formal tenure, and the communities who grant usufruct rights over habitats and biological resources. As the cases show, where state support is highly institutionalized, the durability of the EMPAs is subject to changes in national level support for private marine tenure; CHICOP's lease remains vulnerable to political change and Laughing Bird Caye is vulnerable to a turn to more centralized state control after a long period of devolved conservation. While the theme of private authority is taken up in international environmental governance (e.g. Pattberg 2007; Green 2013), more research is needed in the context of sustainable entrepreneurship – especially around territorial forms of conservation.

How effective these EMPAs are as territorial conservation approaches in the long-term also appears to be dependent on the timing and source of entrepreneurial action. In both Pemuteran and Chumbe relations with communities are characterised by ongoing friction over the usufruct rights they have granted to the entrepreneurs. In both cases the impetus for creating an EMPA was to change endogenous negative impacts of local fishing practices by limiting access to habitat and resources in return for alternative income streams and (potential) increases in fish yields from effectively managed exclusion areas. In contrast, Laughing Bird Caye was developed in response to the exogenous threat of dredging and only subsequently led to the exclusion of fishers; a process which the fishers themselves initiated. In this case the legitimacy of a conservation intervention was established prior to the entrepreneurs establishing authority over this intervention. In the other cases there was no agreed basis from which the entrepreneurial intervention could draw their legitimacy. As reflected in other resource sectors (e.g. Gritten and Saastamoinen, 2010; Gedajlovic et al., 2013), gaining acceptability and support and ultimately legitimacy through the relations entrepreneurs build with different actors especially is even more essential when there is a degree of resource enclosure.

Overall, the results support claims that in conserving common or open access resources entrepreneurial activity relies on changing access and use rights and establishing new industry norms to shape the behavior of resource users (Dean and McMullen, 2007; Pacheco et al., 2010). The long-term success of a sustainability entrepreneur in such area-based arrangements is therefore not only related to their capacity to identify and exploit opportunities, but also the extent to which they can consolidate their activities and create durable long-term institutional change. Such observations extend the literature on sustainability entrepreneurialism by opening up the challenges of territorially based entrepreneurial activity and making links to other studies of locally embedded private conservation (Rosen and Olsson, 2013; Van Wijk et al., 2015). Building on Green (2013), these observations also point to the need for further research on the under-explored notion of entrepreneurial authority, and in doing so offer an opportunity to extend the literature on sustainable entrepreneurialism.

Conclusion

The future of sustainability entrepreneurship in the establishment of MPAs is dependent on not only the capacity of entrepreneurs to seek and exploit opportunities, but also on their capacity to consolidate private institutions over the long-term. The cases analyzed in this chapter demonstrate that the 'durability' of their entrepreneurial activity is dependent on the support they are able to gain and sustain from the state and local communities. Entrepreneurial activity in marine conservation, involving spatial demarcation of conservation activities, is therefore a highly relational and dynamic process of legitimating private authority. The more institutionalized an arrangement becomes the more secure the economic and environmental individual and communal payoffs may be, yet concurrently flexibility remains an essential component of entrepreneurialism and innovation. Balancing these juxtaposing elements are challenges all EMPAs face.

Furthermore, the results show that private control over marine conservation is not independent of the state. On the contrary, state involvement is fundamental in providing the 'action space' for entrepreneurs to exploit and consolidate opportunities, while also ensuring they are able to contribute to the stewardship of public habitat and resources. Without a clear framework for state collaboration and support these private sustainability entrepreneurs are unlikely to be able to establish durable spatially delimited institutions around the conservation of marine resources over the long term. Nevertheless, the durability of these conservation areas also remains dependent on the flexibility and efficiency of entrepreneurial activity. Future research can further our understanding of how EMPAs can contribute to wider-scale marine and coastal planning either by connecting wider network of small conservation areas, or stimulating state marine protected areas that promote resilience through coastal linkages with EMPAs. However, in doing so, questions need to be asked about how both private and public interests can be flexibly and efficiently met.

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