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A comparison of rural community perceptions and involvement in conservation between the Fiji Islands and Southwestern Portugal

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ABSTRACT

Community involvement in conservation provides significant benefits including the ownership of resources and initiatives that integrate traditional and local knowledge into decision-making processes and management activities. This study assesses and compares the effectiveness of community involvement in conservation initiatives in two different countries, by examining the community's level of involvement and their perceptions of conservation in Yadua (Fiji) and the Natural Park of Southwest Alentejo and Costa Vicentina (PNSACV) (Portugal). The hypothesis was that "Effective community involvement contributes to the success, ownership, benefits, positive impacts and sustainability of conservation projects". Using questionnaires, structured interviews and document analyses of past literature, information obtained about community involvement in conservation activities in the two study areas was compared. Results showed that while community members showed high levels of involvement in all conservation activities in the Fiji study (88%), this was not the case in the Portugal study (43%), where results showed that lack of community involvement, leading to ineffective conservation. In both cases, however, the levels of involvement appear to have influenced community perceptions of conservation efforts' impact upon livelihoods. The Fiji study showed that community-focused conservation can be successful given appropriate community involvement. This contrasted with the Portugal study where conservation efforts were not community-focused and often led to conflicts and criticisms. A *bottom-up* approach has been utilized in Yadua, Fiji, whereas a *top-down* approach is clearly observed for the PNSACV in Portugal. A more holistic approach to conservation would empower local communities and ensure the successful implementation of conservation programmes.

1. Introduction

In most Pacific Island Countries and in Portugal, the coastal zone is one of the most environmentally and culturally important and highly impacted areas. In recent years, local communities worldwide, but especially in Latin America, the Caribbean, Asia and the Pacific, have emerged as leaders in the conservation and sustainable use of their natural resources through initiatives such as the establishment of protected areas, with the number of community-based conservation areas increasing annually (Veitayaki, 1998; Tawake et al., 2001; GEF, 2006).

This *bottom-up* management approach of involving local communities from the start is applied at the local level with a long lasting community based management, where users live in proximity and experience direct impacts and benefits from the protected area (Bartlett et al., 2010; Gaymer et al., 2014). The conservation objectives of these types of areas are at the habitat or ecosystem level and intend to resolve a specific problem (Qiu et al., 2009). The *bottom-up* approach has strong public participation with active engagement of communities and stakeholders (Sayce et al., 2013), therefore it is a complicated and long-lasting process of creation and management of protected areas (Sanchirico et al., 2002). However, conserved areas where the local communities are involved provide significant benefits, including increased success and cost-effectiveness; a sense of ownership of natural resources and conservation initiatives; integration of traditional and local knowledge into the decision-making process; and direct

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community involvement in management activities (including planning, restoration, monitoring and enforcement) (Tawake et al., 2001; Walpole and Goodwin, 2001; Veitayaki, 2004; Danielsen et al., 2007; Waylen et al., 2010).

Lack of community involvement is more likely in more developed countries, such as in Portugal, where there is public or privately owned land that may be protected only by national and/or local authorities. This *top-down* management approach is commonly applied at a regional or national scale where the strategy is centralized by the government and is based on scientific knowledge with limited public participation (Gaymer et al., 2014). Conservation objectives are usually aligned with international commitments, protecting the entire ecosystem and its buffer connection to other ecosystems (Toonen et al., 2013). Because of this centralized strategy, there is often a favourable costs/benefit relationship in the creation of the protected area (Wilhelm et al., 2014) and its implementation is faster than a *bottom-up* approach. Failure of this type of conservation strategy is attributed mainly to a lack of compliance from the users due to the lack of consultation before the regulation is established (Trakolis, 2001; Sanchirico et al., 2002).

In contrast, Pacific Island Countries generally tend to have limited government capacity for protected area management and most of the land and resources are owned communally, rather than individually. This makes community consultation and involvement essential in any conservation activity from the outset.

In the Fiji Islands, the perceptions on conservation activities of the target communities have not been fully explored. Berkes (2004: p628) argues that to improve conservation, we need a better understanding of the nature of people, communities, institutions, and their interrelations at various levels. Although protected areas are clearly a valuable tool for conserving the environment, protected area managers need to consider how the conservation of these areas may impact the people who use them, and how users, in turn, impact those areas. Historically, the majority of research on protected areas has focused on the natural environment. However, more recent studies have shown how social and cultural factors, rather than biological or physical ones tend to influence the success or failure of a protected area (Pomeroy et al., 2006). Consequently, applied social science research has been seen as a key component in the successful planning, development, management and monitoring of protected areas as it allows for the gauging of public perceptions of conservation management and effectiveness while also providing for possible management changes, often leading to open dialogue between managers and stakeholders. Studying people's perceptions and values can help managers to: i) identify what is important to different users; ii) determine outreach and educational needs; iii) justify management decisions; iv) promote resource protection; and, v) identify potential conflict areas (NOAA, 2009: p8).

Using a case study and comparative approach, this study explores the effectiveness of community conservation in Fiji and Portugal through an assessment of the level of involvement, impacts and perceptions of the respective local communities in conservation initiatives. The overall objective of the study is to examine and make comparisons of the role of the respective communities, their various levels of involvement as well as their perceptions of the coastal conservation activities in the two study sites. More specifically, the study examines the initial objectives of each project, the effectiveness and impacts of community involvement in these, and the status of each activity from a community perspective. These specific objectives are achieved by investigating i) the processes used to involve communities in the project; ii) the effectiveness of community involvement; and, iii) the benefits and challenges of community involvement in conservation activities. The underlying assumption of the study is that conservation is likely to be successful if there was well-supported community involvement in all phases leading to a community sense of ownership, benefit from, and commitment to, the objectives of conservation initiatives.

The main hypothesis used to derive the research questions was:

> *"Effective community involvement contributes to the success, ownership, benefits, positive impacts and sustainability of conservation projects".*

The main research questions were:

- *"To what extent is the community involved and how has this contributed to the status, ownership benefits, impacts and sustainability of the project?"*
- *"What is the current status and how has the nature of community involvement contributed to the impacts of the conservation project on community perceptions and livelihoods?*

2. Study areas: Yadua (Fiji) and the PNSACV (Portugal)

2.1. Fiji – Yadua and Yadua Taba

The first study site is the small tropical volcanic islands of Yadua and Yadua Taba, in Bua province, situated in the northwest of the Fiji archipelago in the Southwest Pacific Ocean (Fig. 1). The smaller island (Yadua Taba), lies southeast of Yadua, the two islands are separated by a shallow 250 m channel (NTF, 2008). It is the site of the Yadua Conservation Project (YCP), a range of conservation activities, both marine and terrestrial, focusing mainly on the conservation of the endemic and critically endangered Fijian crested iguana (*Brachylophus vitiensis*) (Gibbons, 1981), located on the neighbouring uninhabited island of Yadua Taba. Here the local community of Denimanu Village, on Yadua Island, plays an important role in the overall conservation process. Yadua is an initiative of the National Trust of Fiji (NTF), a statutory body responsible for the protection of Fiji's natural, cultural and national heritage.

Yadua, the larger of the two islands, has an area of 13.6 km^2 with Denimanu village, being the only community present in the area. Although Yadua and Yadua Taba are part of Bua province, the inhabitants of Denimanu are settlers from other provinces of Fiji and do not have rights to the islands although they can use the resources for a variety of subsistence purposes (NTF, 2008). At the time of the study, Denimanu had a population of 233, consisting of 129 males and 104 females (Davetanivalu, 2009).

Yadua Taba is a 0.72 km^2 uninhabited island (ECF, 1994) and is home to the world's only natural breeding population of the Fijian Crested Iguana, *Brachylophus vitiensis*. In 1980, in response to the need for conservation, the Yadua Taba Crested Iguana Sanctuary (YTCIS) was established as Fiji's first wildlife sanctuary. Today, Yadua Taba is permanently leased by the NTF through the Native Land Trust Board (NTF, 2008). Listed in the IUCN Directory of Protected Areas in Oceania in 1991, Yadua Taba was given the status of IUCN Management Category IV as a "Managed Nature Reserve". Since then visits to the YTCIS have been restricted to researchers and media personnel and unauthorized landings on the island are prohibited (NTF, 2008).

Conversation activities on Yadua and Yadua Taba relate primarily to *B. vitiensis,* an herbivorous iguana endemic to Fiji and restricted to tropical dry forest (TDF) habitats. It is currently listed under IUCN criteria as Critically Endangered (IUCN, 2009), and is the only Fijian reptile listed as 'endangered' in the Fiji National

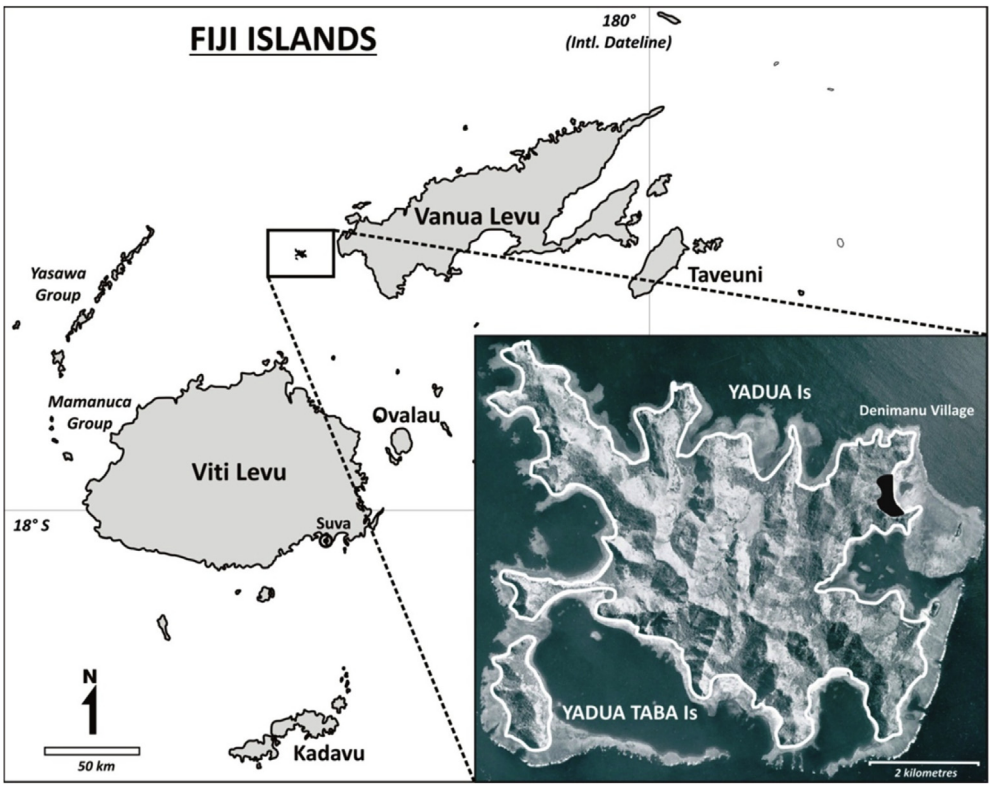

Fig. 1. The Fiji Islands with Yadua and Yadua Taba Islands enlarged (Adapted from: FDLS, 1994).

Biodiversity Strategy and Action Plan (NBSAP) (NBSAP, 1998). It is bright green with white bands and considered one of the world's rarest and most attractive iguanas.

In the past 20 years, *B. vitiensis* has been extirpated from almost 80% of its original documented range primarily due to extensive destruction of its forest habitat through fire, goat grazing, and by feral cat predation. Yadua Taba is now the stronghold for the species, with the island currently supporting approximately 98% of all known individuals. The current population (<12,000) is estimated to have an average density of 164–270 iguanas/ha, the highest recorded density for terrestrial iguanas anywhere in the world (Morrison et al., 2009) and is the only legally protected population in Fiji (Harlow et al., 2007).

The vegetation of Yadua Taba is largely intact, and dominated by some of the best remaining stands of tropical dry forest (Keppel and Tuiwawa, 2007). This makes it one of the most threatened vegetation types in the Pacific, and of littoral or beach forest (Laurie et al., 1987) in Fiji. Weed and feral animal eradication has been carried out on the island of Yadua Taba in order to better facilitate the preservation of *B. vitiensis* through habitat restoration. Other conservation activities on Yadua and Yadua Taba include marine monitoring of surrounding coral reef ecosystems and turtle tagging, which are part of the NTF's aim to get Yadua Taba listed as a World Heritage Site by UNESCO. The marine ecosystem surrounding the two islands was also the site of the first Greenforce volunteer camp, a United Kingdom-based organisation that conducted biological surveys on the coral reef ecosystem over an eight-year period (Wignarajah and Stoker, 2004).

2.2. Portugal – the Natural Park of Southwest Alentejo and Costa Vicentina (PNSACV)

The PNSACV is located along the south-western coast of Portugal extending 110 km from the Morgavel River on the southern Alentejo coast through the western Algarve coast and around Cabo de São Vicente to Burgau, covering a total area of 744 km^2 (570 km^2 terrestrial and 174 km^2 marine) (Fig. 2). Its area incorporates the coastal strip of the municipalities of Sines, Odemira, Aljezur and Vila do Bispo, an offshore area 2 km from the coast, and the water catchment basin of the Mira River. The main objective of the PNSACV was to *"preserve its diversity reflected in the presence of a rich flora and fauna, which includes several endemic species, and where avifauna and ichthyofauna hold great importance"* (ICNB, 2010a).

The natural habitats of the PNSACV are special for nature conservation, with common occurrences of important wildlife and floristic species in an extensive area of marine reserve (12% of the total area) coastal cliffs, beaches, dunes and heaths (60%) and wetlands (6%). There are also extensive cereal crops under cultivation (10%), coniferous forests (2%), clerophyllous forests (10%) and marine rock islets (ICNB, 2008; ICNB, 2010b). In a study of participatory approaches to conflicting land use in the PNSACV conducted by Trigo (2003), it was found that a high proportion of residents interviewed (77.8%), were not fully aware of the valuable biological diversity that exists in the PNSACV. Among the rich fauna of this coast, are birds, with many species including Egyptian vultures (*Neophron percnopterus*), booted eagles (*Hieraaetus pennatus*) and black kites (*Milvus migrans*) breeding in the area in winter or using it as a migration platform between North Africa and Europe (Beja, 1988; Pinto, 1997; Trigo, 2003). Important bird species that nest in the coastal cliffs include the osprey (*Pandion haliaetus*) and white stork (*Ciconia ciconia*) (ICNB, 2010a).

The aquatic environment supports a wide range of freshwater fish species, many of which are endemic to Portugal, such as the barbel (*Barbus sclateri*) and Portuguese boga (*Chondrostoma lusitanicum*) and a local endemic cyprinid (*Leuciscus torgalensis*). In

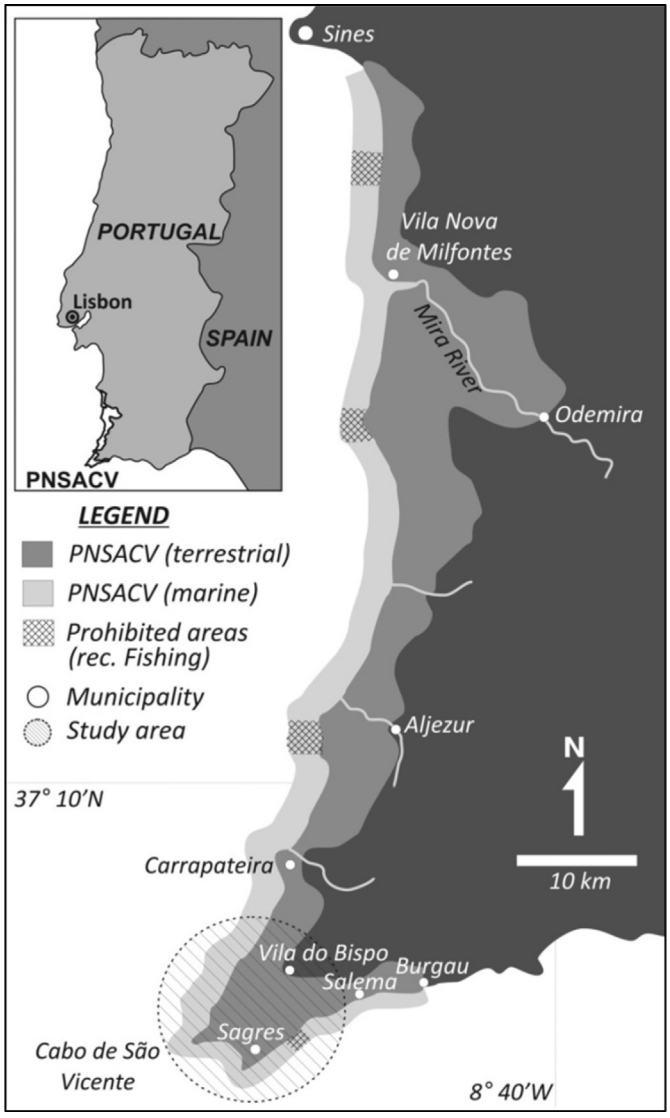

Fig. 2. The PNSACV Area (adapted from: ICNF, 2016a).

terms of marine resources, this is one of the richest areas on the Portuguese coast, with fish, rock-dwelling molluscs and edible barnacles available in abundance (Dean et al., 2012). In the temporary lagoons of the SW area of the park, a new species was found and described in 2010, the crustacean branchipoda *Triops vicentinus* (Korn et al., 2010). Inshore fishing is an important activity in the municipalities of Sines, Odemira. Aljezur and Vila do Bispo, with the sale and consumption of a wide range of fresh fish and assorted seafood (barnacles, clams, mussels, sea urchins and limpets) playing an important role in complementing the income of many families (ICNB, 2000). The gradual depletion of some resources, notably stalked barnacle or *perceves* (*Pollicipes pollicipes*) and crabs (*Liocarcinus* and *Necora* spp.), has justified the introduction of exceptional measures and the strict regulations adopted to avoid undue competition with commercial fisheries and ensure their sustainable management and conservation. Stewart et al. (2014) described the stakeholder' perceptions concerning the application of these restrictions to the stalked barnacle fishery. Although they believed that the resource was overharvested, they considered that their needs should have been part of the legislation formulation process, with the re-establishment of the local market and a reconsideration of the annual closure period.

The PNSACV, especially the area of Sagres and Cabo de São Vicente, has a rich and valuable cultural heritage with several archaeological sites, monuments and distinctive cultural landscapes. These include several remains of past human occupation, as far back as 10,000 years B.C. in the early Mesolithic. However, lack of awareness has led to the destruction of some of the area's important archaeological resources and heritage has been a problem (ICNB, 2008).

The total labour force of towns located within the PNSACV is 10,607 inhabitants, of whom 49% are in the primary sector (agriculture, forestry and fisheries), 27% in the secondary sector (agro-industries) and 24% in the tertiary sector. Although the primary sector is the most dominant in the four municipalities covered by the PNSACV, there has been a widespread loss of economic activities, including those related to forestry and agriculture, the main sources of people's livelihoods (ICNB, 2008). The recent increase in the tertiary sector (24% of labour force) is due largely to the development of tourism (ICNB, 2000; Trigo, 2003), which causes an expansion up to ten times the normal resident population in some areas during the peak of the touristic season (ICNB, 2000).

The Protected Landscape Area of the SW Alentejo and Costa Vicentina was created (Decreto-Lei nº241/88) in 1988. Later in 1995, the area was classified as the Natural Park of the SW Alentejo and Costa Vicentina (PNSACV) (Decreto regulamentar nº26/95), including the adjacent marine area up to 2 km offshore. The first land planning for the park was approved in 1995 (Decreto regulamentar nº33/95). In 2010, the area was classified as an Important Bird Area (IBA-PT031) by Birdlife International (Birdlife, 2010). At the same time, Ponta de Sagres, on the southwest coast, has become part of the Network of Reserves of the Council of Europe and has been designated as a Biogenetic Reserve and integrated into the PNSACV as a Special Protection Area (SPA) within the Natura2000 initiative (ICNB, 2010a; DRE, 2016a). The PNSACV is managed by a Steering Committee that has special powers, which include the imposition of fines and sanctions under existing law and the approval of its own local by-laws. The municipalities are represented in this Steering Committee by their President or a Councillor with delegated powers (DRE, 2016a).

In the PNSACV, the majority of land is privately owned, with only small parcels held by the state and municipalities. However, the right to one's land is not absolute and still governed to a certain extent by the various planning instruments within the PNSACV, including the PROT (Plano Regional de Ordenamento) Alentejo, PROT Algarve, POPNSACV (Plano de Ordenamento do PNSACV), POOC (Planos de Ordenamento da Orla Costeira) Sines-Burgau and PDM's (Plano Diretor Municipal) for Sines, Odemira, Aljezur and Vila do Bispo (Bastos, 2010).

The POPNSACV published in 2011 is the management plan for the park, affecting both land and the 2 km of marine area parallel to the coastline (Fig. 2). It also defines the areas affected by the different protection regimes (total protection, partial protection (type I and II), complementary (type I and II)) and the regime activities to be developed within the park. The main objective of the plan is to ensure the good management and the sustainable use of cultural and natural resources with effective conservation for places considered to be fundamental to the ecological sustainability of the park (DRE, 2016b; ICNF, 2016b).

2.2.1. The survey area: Ponta de Sagres and Cabo de São Vicente (UT5)

This case study area was a PNSACV designated UT5 (Unidade Territorial 5), which includes Ponta de Sagres and Cabo de São Vicente (Fig. 2). It displays a system of extensive land use, mainly consisting of traditional systems of extensive dryland, mixed farming and pasture. Little environmental disturbance from

tourism and urban expansion in the past has allowed agricultural activities to be conducted compatibly with the conservation of natural resources and local biodiversity (ICNB, 2008).

3. Methods

The case study methodology was used in this research. The first case study consisted of an in-depth study of a small-scale conservation initiative in the Fiji Islands, while the second, a less in-depth study of a larger-scale conservation initiative in coastal south-western Portugal. The in-depth study in Fiji was made possible by the relatively small size of the study area making it easier to i) conduct research into different conservation activities, and, ii) have better access to community members for interviewing and questionnaire administration. All efforts were made to replicate the Fiji study in Portugal, after the Fiji study. However due to the differences in the size of the two study areas, challenges were faced in relation to differences in sample size and representation, making standardisation between the two sites difficult. Consequently, comparisons were limited to those areas where it was decided that there was a genuine reason for comparison and where significant results were obtained from data collected. The study used a phenomenological approach in trying to obtain insights into the research participants' perceptions of conservation activities in their respective area. These perceptions also helped to gain a sense of the realities faced by the people who live in areas where conservation activities are taking place. The main data collection technique consisted of questionnaire surveys, structured interviews with community leaders/knowledgeable members to gain further insight from the community's perspective, as well as document analyses of past reports and articles involving the community in the study areas and personal observations of community involvement.

Questionnaire surveys were used to gather detailed information from community members on the nature of conservation activities and their perspectives on such activities. The questionnaires were individually administered in the local Fijian and Portuguese languages. Community observation was also carried out in order to try to verify information obtained via questionnaires and in-depth interviews.

In Yadua information was obtained from all adults of different age groups in order to gauge the views and knowledge held by people. Key informants, including knowledgeable elders and social group leaders were interviewed face-to-face. They provided more in-depth and useful information about the study area, especially relating to community involvement in, and at different levels of, conservation activities associated with the conservation of *B. vitiensis* in the last ten years. They also provided information about community perceptions of the various activities of conservation projects, mainly related to people's involvement in these activities and the impact of such activities on their livelihoods. These questionnaire surveys were administered over a two-week period in August 2009.

Questionnaires for the PNSACV case study were also formulated and administered in the same way with the same question structure as that of the main case study at Denimanu, for the purpose of comparison. The only difference was that questions were not presented to respondents with regards to all individual conservation activities of the PNSACV, but were aimed at obtaining community perceptions of the PNSACV as a whole. The Portuguese questionnaires were administered between February and June 2010.

Structured interviews were employed for questionnaire administration whereby quantitative data was collected by the interviewer, ensuring that each interviewee was presented with exactly the same questions in the same order, so that answers can be reliably aggregated and comparisons made with confidence between sample subgroups (such as gender) or different topics. Most questions were close-ended where the choices of answers were often pre-set in advance. These answers were obtained through pilot surveys with key informants but were not revealed to the respondent during the interview, and were only for the purpose of aiding in the administration of the questionnaire. Most questions, though close-ended, did allow for the respondents to make their own views and opinions known. These were incorporated into the results obtained from pre-set answers. Some questions were open ended and allowed for respondents to freely answer as they wished. For example, when asking about community involvement, the respondents provided the answers themselves with no pre-formulated answers as may have been the case with other questions. These answers were then grouped together according to similarity and percentages were calculated from there, those with highest values being discussed further. Therefore, respondents were free to list down any involvement they perceived themselves to be involved in.

In Portugal, data collection included the use of an online survey tool of Google called '*surveymonkey*' for questionnaire administration in addition to face-to-face questionnaire administration. '*Surveymonkey*' proved to be of great value with a significant portion of data being obtained in this way, as it allows for respondents to answer survey questions online, which are then submitted back to the researcher. The main advantages with online administration were translatability between the English and Portuguese languages, the ease with which it could be completed by the respondents, and the instant reception of data once the respondent has completed the questionnaire. In addition, respondents more readily agreed to complete questionnaires using '*surveymonkey*' compared to the high number who declined being interviewed in person, possibly because they did not wish to be seen as opposing the PNSACV. Community members that did not have access to the internet were covered by the administration of the questionnaire face-to-face. Out of the 49 questionnaires administered in Portugal, 26 were done through '*surveymonkey*'. A limitation in the use of '*surveymonkey*' was the lack of personal interaction with the respondents together with the possibility that some of the answers did not come directly from the respondents because of the involvement of assistants during the process of completing the questionnaire.

3.1. Sample composition

Non-random/purposeful sampling was used in order to include key informants within the communities in Yadua and the PNSACV. Due to the relatively small size of the community in Yadua, attempts were made to survey all adults (18 and over), thus minimising bias in sampling.

Opinions/responses of different groups are shown as percentages of the total sample, or in some cases as percentages of a proportion of the total sample (for example males/females or different age groups). In total, 58 questionnaires were administered in Yadua, (80% of the 76 adults present at the time of the survey) and 49 questionnaires in the PNSACV in the municipalities of Vila do Bispo and Sagres (Table 1). The total permanent resident population of the Portuguese study area, according to the 2011 Portuguese census, was 5258 individuals (INE, 2012: p366). A methodological limitation would be that the sample size in the Portugal case study may not seem to be representative of the total population, however every attempt was made to gather the views of as many individuals as possible given the timeframe and reluctance of residents to reveal information on the PNSACV operations.

A clear division of labour between men and women in Yadua in relation to the occupations/livelihoods was observed. Women

Table 1
Respondent composition (total individuals shown in bold).

Gender	Age group						Total	
	18–29 yrs		30–49 yrs		50+ yrs			
	Yadua	PNSACV	Yadua	PNSACV	Yadua	PNSACV	Yadua	PNSACV
Female	5 (9%)	5 (10%)	11 (19%)	7 (14%)	10 (17%)	8 (17%)	26 (45%)	20 (41%)
Male	12 (21%)	7 (14%)	11 (19%)	15 (31%)	9 (16%)	7 (14%)	32 (55%)	29 (59%)
Total	17 (29%)	12 (24%)	22 (38%)	22 (45%)	19 (33%)	15 (31%)	**58**	**49**

devoted most of their time to household duties (92%), which include some fishing for subsistence and occasional mat and handicraft making for subsistence use and for sale outside the village. A small number engage in fishing/farming and paid employment such as shopkeepers. Fifty-six percent of men were engaged in fishing/farming, mainly for subsistence, although some surplus was sold to people on the mainland on a casual basis. Other sources of livelihood for men included paid employment as sanctuary rangers, school managers, church officials and government-appointed village officers (9%), and commercial diving (3%).

A wide range of occupations/livelihoods were present within the PNSACV study area, however, there was no dominant occupation that people relied upon, with a slightly larger number of respondents in the clerical (secretarial and administration), tourism/restaurants (hospitality) and retired categories (11–14%). 5–10% as civil servants, domestic duties, entrepreneurs, fishermen, park employees, scientists, students, teachers and tradesmen. Less than 5% were unemployed.

Quantitative data was analysed using *Predictive Analytics Software* (PASW). Qualitative data from questionnaires and participant observations were analysed and presented in the Results and Discussion.

For Portuguese data collection, the main constraint was the reluctance of community members to participate in face-to-face questionnaire administration, possibly due to their opposition to the operations of the PNSACV. The same difficulties were experienced by Stewart et al. (2014), while conducting a questionnaire survey focusing on the stalked barnacle fishery.

4. Results

A clear division of labour between men and women was evident in Denimanu with women devoting most of their time to household duties (92%). Fifty six percent of men were engaged in fishing/farming, mainly for subsistence, although some were involved in selling of surplus items to people on the mainland on a casual basis. This included sea cucumber (bêche-de-mer) which fetched a relatively a high price of $40–50 per kg of dried animal (Veitayaki, pers comm.).

In Portugal on the other hand, a wide range of occupations/livelihoods were reported with no particular dominant occupation although a slightly higher number of respondents reported being associated with administrative activities, hospitality activities (tourism/restaurants) while others identified themselves as trades people, scientists, students, fishermen, entrepreneur, domestic civil servants, teachers and park employees.

4.1. Fiji

A high level of community involvement was observed in all activities in Yadua (average of 88%) (Table 2). Benefits were perceived in all activities and Greenforce was seen to be the most beneficial (Table 3) to the community. Perceived benefits included the free provision of scuba dive certification (76%), community environmental awareness and education (74%), and increased opportunities to interact with foreigners (67%). Greenforce also benefitted from the community through more opportunities to learn and experience the Fijian way of life through regular village visits (67%); operational security (66%); together with the provision of cheap support services (55%) such as transportation, laundry services, construction of accommodation, and fresh food provisions. Yadua and the community both benefit from community involvement by helping create a sense of pride and ownership of the resource in question (86%), (in this case, *B. Vitiensis*), enhancing community support (86%) and improved policing of the sanctuary (78%).

Most respondents (>90%) believed that the invasive species management work benefited a lot from their involvement in terms of their time and their knowledge of the area. Furthermore, the majority (80%) believed that their involvement in these activities would ensure the long-term sustainability of the conservation programme.

The majority of respondents saw their involvement in research activities as beneficial in ensuring transparency of the research being carried out; community knowledge of the area, terrain and environment; and cost-effectiveness due to community assistance. A large proportion (97%) reported an increase in awareness of the scientific aspects of *B. vitiensis*.

Table 2
Levels of community involvement in each activity (totals of all involvement shown in bold).

Activity	Closely involved (%)		Partially involved (%)		Consulted (%)		Total (%)	
	F	M	F	M	F	M	F	M
YTCIS operation	5	23	10	50	0	3	**15**	**76**
Invasive species management	0	34	91	62	0	3	**91**	**99**
Greenforce operations	8	37	85	50	0	7	**93**	**94**
Community outreach	12	59	81	24	0	7	**93**	**90**
Environmental awareness	24	44	76	44	0	11	**100**	**99**
Environmental research	9	39	91	61	0	0	**100**	**100**
(Average)							***(88)***	
PNSACV	0	18	11	25	28	4	**39**	**47**
(Average)							***(43)***	

Table 3
Benefits of community involvement.

Greenforce	YTCIS operation	Invasive species management	Research	PNSACV
Benefit (%)	Benefit (%)	Benefit (%)	Benefit (%)	Benefit (%)
Income (95)	Community support (86)	Labour & local knowledge (95)	Awareness of research (100)	Recognition of opinions (43)
Local knowledge (91)	Pride & ownership (86)	Sustainability (87)	Iguana science (97)	Job opportunities (20)
Dive certification (76)	Policing (78)	Income (85)	Transparency (95)	Awareness of culture/heritage (17)
Environmental awareness (74)	Income (68)	Knowledge gained (83)	Local knowledge (92)	Labour & local knowledge (15)
Global awareness (67)			Cost effectiveness (80)	Preservation of culture/heritage (15)
Cultural experience (67)			Income (64)	
Operational security (66)				
Support services (65)				

There were some negative impacts of the YTCIS on the community. The majority of both men and women (52% each) said that the prohibition of the use of the island for goat rearing or fishing camps has had some negative impacts on people's livelihoods while the villagers' heavy reliance on Greenforce for income (31%) was seen as a negative impact by some respondents. However, the majority of the respondents (74%) did not perceive any conflicts associated with conservation measures. More than 85% of respondents in the Fiji case study believed that conservation activities in Yadua were successful, believing that the overall relationships between the local community and NTF was a positive one.

Most activities were perceived as having an impact on people's knowledge of the environment and the finite nature of that environment (>88% of respondents), with the exception of outreach activities (<28% of respondents). The highest proportion of respondents reported that community environmental awareness activities had the highest (positive) impact on their knowledge of the environment, and the finite nature of their resources.

4.2. Portugal

A lower level of community involvement was observed in the PNSACV (average of 43%) (Table 2). More than 50% of respondents said that they were not involved in any way. Increasing community involvement was also seen by respondents as being beneficial to the local community in a number of ways including the visible valuing of community opinions (43%) and the provision of much needed income (20%). However, very few people believed that their involvement in the PNSACV had any benefits (Table 3). Many people were of the view that the PNSACV has had a negative impact on their community due to this lack of involvement and consultation. As Fig. 3 shows, high on the list of negative impacts (91%) is the large number of restrictions imposed which negatively affected people's livelihood. Other significant negative impacts perceived by residents included a perceived degradation of cultural and natural resources and heritage (37%); fluctuation in land prices (land speculation-33%) often leading to a reduced population (22%) from emigration.

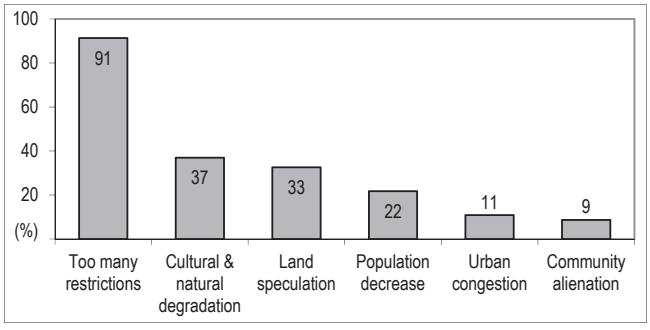

Fig. 3. Negative impacts on the community of the PNSACV.

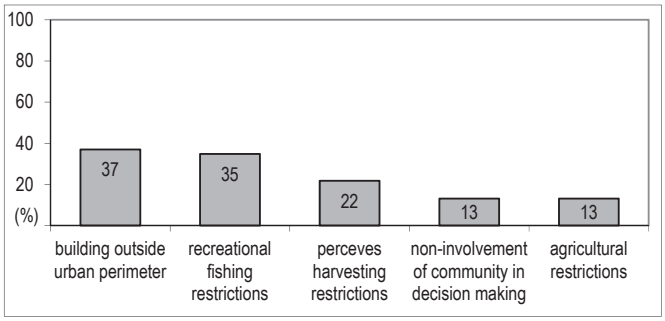

Fig. 4. Conflicts arising within the PNSACV involving the community.

The absence of strong community participation in conservation seemed to have caused a high degree of conflicts between the local community and PNSACV authorities, as Fig. 4 shows. These included conflicting views on construction sites within the national park (37%), recreational fishing regulations (35%) and restrictions placed on the harvesting of *perceves*/stalked barnacle (*P. pollicipes*) (22%).

In addition, the majority of community members (69%) felt that PNSACV seem to have failed to realise its initial objectives; with nearly a third (26%) believing that PNSACV had been inactive in its operation. Only 5% felt that the project has had some success.

It was evident from the study, that although the PNSACV has had an impact on community livelihoods, especially people's use of natural resources (>87%) the survey indicated that the PNSACV had minimal impact on people's knowledge of the environment, and the finite nature of their resources (<37%).

5. Discussion

5.1. Community involvement

In both case studies, it was evident that the communities had been using their surrounding resources for generations, and their cultures and knowledge were deeply rooted in the environment upon which they depend. This should make them primary stakeholders in conservation and therefore should be closely involved in conservation efforts. This was the case in Fiji but not for Portugal.

In Yadua, Fiji, a *bottom-up* approach has been used, with active participation from the beginning of the main stakeholders. The NTF is only a statutory body that has an official lease agreement on the island sanctuary in order to safeguard the conservation of the Crested Iguanas, especially from outside interference and poaching. NTF is a non-profitable body tasked to conserve Fiji's natural

heritage therefore is only in a facilitator's role, with a single heritage officer assigned to the project, with majority involvement needed from the community for success. Therefore, management decisions are done in close consultation with the community, as they are the ones that are present in the area and are relied upon for both policing purposes and application of conservation purposes due to the remoteness of the islands. Therefore, it is referred to as a *bottom-up* approach as the community/resource users have always been involved and have a major say in decision making from the start. In the case of the PNSACV in Portugal, a *top-down* approach has been used, where the central controlling authority is the Instituto da Conservação da Natureza e das Florestas (ICNF).

This difference in management approaches and hence community involvement may be attributed to factors such as differing situations of land tenure and conservation practices. In Fiji, substantial portions of land (83%) and associated natural resources are owned by local communities and this makes the values and views of indigenous Fijians towards conservation central to any discussion on this subject. However, in PNSACV, land is under state control, with local communities having little or no control over land and resource use, hence, there is no real need for authorities to consider local communities' views and opinions. Another difference that was observed in this study relates to the widespread use of traditional conservation practices, such as limited entry, closed seasons, closed areas, size limits and gear restrictions by the local community to safeguard against excessive resource use in Fiji. In Portugal, the only conservation practices in use were those governed by legislation, such as restrictions on the harvest of *perceves*, and enforced by the park authorities.

The Fijian interest in biodiversity because of its usefulness together with its close association with cultural identity and the spiritual world (*vanua*), for example the Crested Iguana being a totem. However, this is not evident in Portugal. These successful, empirically proven, traditional conservation practices, as stated above, were already known to many people in Fiji and were governed by traditional compliance methods and protocols such as fishing bans and fishing rights to a particular area. Within these protocols, there is strong community involvement. Therefore, in Fiji, the community involvement is absolutely essential if conservation efforts are to work effectively.

Because most people were not involved in PNSACV, a high proportion of them (91%) expressed a wish to become more involved in future activities of the PNSACV, 52% of these believed that the community needed to be involved if PNSACV was to succeed. It was also the view of respondents that important traditional and local information was available within the local communities especially relating to specific areas and species at risk that needed to be managed and conserved. According to many respondents, park authorities did not seem to show much interest in involving them in their projects assuming that they were not interested in achieving something for the greater good of the local population.

In both cases, the level of community involvement was closely related to the success of conservation efforts where 69% of respondents in Portugal believed the PNSACV had failed compared to over 85% of respondents in Fiji perceiving conservation activities as successful.

There was also a clear indication of the greater involvement of men compared to women. For example, in Fiji, the data showed that men featured prominently as field assistants (82%) and field guides (25%) whereas women provided only support services (accommodation, food and transport) (100%) to different research activities, although men were also involved in support services (86%).

On a broader level, this research study has shown the close interconnections between people and communities and their physical environment, reflecting what Berkes (2004) argues about the need to incorporate the dynamic interactions between societies and natural systems. Hence, a more complete information base would therefore consist of a local community's knowledge and understandings together with the results of scientific studies (Berkes et al., 2000). This synthesis also helps both communities and scientists better understand the need to conserve resources, as communities feel more empowered and have a stronger sense of ownership of what is being done on their behalf (Berkes et al., 2000; Olsson and Folke, 2001; Blann and Musumeci, 2003). In relation to this, PNSACV authorities must view the opportunity to involve the community, in planning, conservation activities and decision making, as a way of harnessing the vast local knowledge of natural resources as well as the labour force to help in conservation efforts and the sustainable use of these resources.

A more holistic perception of conservation, which includes a broader view of the livelihood needs of local people and their knowledge systems, may be necessary for conservation programmes (Berkes, 2004). As Brosius and Russell (2003: pp54-59) have suggested, conservationists and communities need to come together in order to build what they call 'constituencies for conservation'. The attitude where people respect the land because they use it is common in many indigenous societies in many parts of the world. Therefore, there is a need to move from a Western scientific-based definition of conservation to a more cross-cultural, inclusive and pluralistic definition that encompasses time-tested, indigenous and local perceptions of people and their environments.

5.2. Negative impacts

The restrictions imposed on local residents' within the PNSACV were perceived to impact peoples' traditional way of life in areas such as agriculture, pastoralism, fishing and forestry, with some expressing dismay at the lack of consultation before many of these restrictions were implemented. This applied to measures involving the conservation of species populations, restrictions on fishing, use of walking trails, unrestricted development of trailer parks, to cater for overnight visitors in vehicles, as well as restrictions placed on buildings, sometimes seen by the community as lacking technical or scientific basis. Many community members felt that the restrictions and laws created by the ICNB were inappropriate and did not take into account the reality of their situations. Consequently, they indicated a preference for a more participatory approach to conservation development that included them in the decision-making process because they had lived in the area for generations and conservation regulations impacted their livelihoods. The increased interest among foreigners on land within the PNSACV has led to land speculation, causing property price inflation in some parts, which, in turn, prevented people, mainly youth, from purchasing homes because they were not affordable. Consequently, many young people have left the area for larger urban areas in search of employment, causing depopulation and a weakening of the community's social fabric. Furthermore, many people in the local community did not welcome the increase in tourism activities in the PNSACV because they did not see much benefit accruing to them from it. Many saw low-cost tourism as simply disturbing their traditional peaceful way of life not to mention the negative effect it would have on the environment.

5.3. Status of conservation

Many respondents in Portugal attributed the failure of the PNSACV to a few main factors including: the apparent lack of local involvement and interaction with local communities (50%); the absence of measures aimed at the conservation of local traditions and identity (30%); and failure to promote economic activity

through sustainable practices (23%).

The PNSACV was generally seen by the community as important for maintaining the natural beauty of the area. Given more community involvement in defining goals and identifying protective measures for conserving the area's natural and cultural resources, the PNSACV could have a more positive effect on the local community. Many people felt that community involvement in PNSACV development should be mandatory, as this would provide a sense of ownership of conservation activities and regulations.

Despite all the reservations attributed by the community, the majority (77%) of respondents felt that the PNSACV was an important asset, in terms of the conservation of natural resources and cultural values. However, most agreed that the management of the area should be inclusive of the local population and that there should be better governance and management structures and increased investment by government in the area in order to strengthen activities and achieve conservation objectives.

5.4. Impact of conservation on community livelihoods

In Fiji, most respondents agreed that their involvement in these programmes had taught them to better conserve all their resources and not just *B. vitiensis* alone, highlighting an increase in awareness of the connectivity between peoples and their environment. Outreach activities, such as village infrastructure development (water reticulation, pavement and housing), did not impact upon people's knowledge of the environment and the finite nature of their resources. This is understandable as outreach activities are usually conducted with the primary objective of improving living conditions, rather than enhancing environmental knowledge within the community.

This study revealed that, from a community perspective, the ICNB (which is responsible for the administration and operation of the PNSACV), has ignored local communities with detrimental effect on people and their livelihoods. Many saw the activities of PNSACV as dictatorial, with little regard for those who have inhabited the area and lived in harmony with nature for many generations. Many were of the view that the PNSACV was not achieving its initial objectives and had served only to delay the area's socio-economic development, negatively impacting the people.

5.5. Difference in occupations/livelihoods

A major difference between the two case studies was seen in the occupation/livelihoods specified by respondents, with those from Fiji having occupations/livelihoods that were more closely related to the everyday utilisation of their natural resources, and those from Portugal indicating occupations/livelihoods of a more modern nature such as paid employment in towns and cities. The different level of modern development might have also influenced social interactions in each community. The isolation and great dependency on natural resources of the Denimanu community are factors that may contribute to their highly communal nature, and desire to participate actively in conservation whereas, the more developed residents of Sagres/Vila do Bispo might have led to a more individualistic outlook and existence, with less desire to participate in conservation.

6. Conclusions

The main difference between the two study sites was clearly evident in the level of community involvement in conservation efforts, with greater involvement being seen in Fiji (an average of 88%) compared to minimal involvement in Portugal (an average of 43%). This may be attributed to the management strategy employed in each case. In Yadua, Fiji, a *bottom-up* approach has been utilized, with the NTF in a facilitator role, and management decisions done with close consultation with the community, whereas a *top-down* approach is clearly observed in the PNSACV in Portugal.

The two case studies clearly demonstrate that a community-focused conservation can be successful given the appropriate involvement of the local communities. Effective community involvement clearly leads to greater community understanding and ownership, increased conservation effectiveness, greater perceived benefits to local communities, fewer conflicts and a greater synergy between conservation and sustainable livelihoods.

This research study exemplifies the strong local concerns related to the use of the PNSACV. Community members expressed the view that as key stakeholders they form an integral part of the PNSACV, therefore in order for the PNSACV's objectives to be fulfilled, the park authorities needed to involve them so that they, as park inhabitants, could benefit from the park activities since they rely on the resources within it for their livelihood. Building effective conservation in the PNSACV, including deciding which areas to strictly protect and which can be used to support local livelihoods, can only be successful if all the different local perceptions and needs are taken into account.

This study also shows that solutions to conservation problems can be found locally, through the consideration of the different agendas and priorities in the different communities and groups involved, and by empowering indigenous peoples and local communities. This will, in turn, require a rights-based approach to ecosystem management, environmental conservation and community development. Furthermore, an interdisciplinary approach to conservation management is essential, and the problems associated with the lack of engagement between stakeholders must be addressed. Local communities will continue to be marginalised without secure rights, effective participation and tangible benefits from development and conservation policies; as was seen in the PNSACV. This study offers support for the argument that conservation management involving communities needs to better understand and adjust to them in order to achieve more desirable and sustainable results.

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References

Bartlett, C.Y., Maltali, T., Petro, G., Valentine, P., 2010. Policy implications of protected area discourse in the Pacific islands. Mar. Policy 34 (1), 99–104.

Bastos, G., 2010. Personal Communication on the Land Tenure of the PNSACV. Departamento de Comunicação e Gestão de Operações, Instituto da Conservação da Natureza e da Biodiversidade, Lisboa.

Beja, P., 1988. Flora e Fauna da Cosata Sudoeste. Lisboa, Unpublished report to the Liga para a Protecção da Natureza (LPN).

Berkes, F., 2004. Rethinking community-based conservation. Conserv. Biol. 18 (3), 621–630.

Berkes, F., Colding, J., Folke, C., 2000. Rediscovery of traditional ecological knowledge as adaptive management. Ecol. Appl. 10 (5), 1251–1262.

Birdlife, 2010. BirdLife IBA Factsheet-PT031-South-west Coast of Portugal. Retrieved 26/06/2010, from. www.birdlife.org/datazone/sites.

Blann, K.S., Musumeci, J.A., 2003. Facing the Adaptive Challenge: Practitioners'

Insights from Negotiating Resource Crises in Minnesota. Navigating the Dynamics of Social-ecological Systems. F. J. Berkes, J. Colding and C. Folke. Cambridge University Press, Cambridge, pp. 210–240.
Brosius, J.P., Russell, D., 2003. Conservation from above: an Anthropological Perspective on Transboundary Protected Areas and Ecoregional Planning. Transboundary Protected Areas: the Viability of Regional Conservation Strategies. U. M. Goodale, M. J. Stern, C. Margoluis, A. G. Lanfer and M. Fladeland. Food Products Press, Binghampton, NY, pp. 39–66.
Danielsen, F., Mendoza, M.M., Tagtag, A., Alviola, P.A., Baalete, D.S., Jensen, A.E., Enghoff, M., Poulsen, M.K., 2007. Increasing conservation management action by involving local people in natural resource monitoring. AMBIO A J. Hum. Environ. 36 (7), 566–570.
Davetanivalu, L., 2009. Denimanu Village Health Statistics. Ministry of Health Fiji, Yadua, Bua.
Dean, R.M., Valente, M.J., Carvalho, A.F., 2012. The mesolithic/neolithic transition on the Costa Vicentina, Portugal. Quat. Int. 264, 100–108.
DRE, 2016a. Diário da República Electronico-Online database of decree laws and ordinances for Portugal. Diário da República Electronico. Imprensa Nacional.
DRE, 2016b. Resolução do Conselho de Ministros n.º 11-B/2011. Diário da República Electronico-Online database of decree laws and ordinances for Portugal. Imprensa Nacional.
ECF, 1994. Management Plan for Yaduataba Crested Iguana Sanctuary. Environmental Consultants (Fiji) Ltd, FijiD. e. Watling. Suva.
FDLS, 1994. Aerial Photograph of Yadua and Yadua Taba, Fiji Islands. Department of Lands and Survey.
Gaymer, C.F., Stadel, A.V., Ban, N.C., Cárcamo, P.F., Ierna, J., Lieberknecht, L.M., 2014. Merging top-down and bottom-up approaches in marine protected areas planning: experiences from around the globe. Aquatic Conserv. Mar. Freshw. Ecosyst. 24 (S2), 128–144.
GEF, 2006. Indigenous and Local Communities and Biodiversity Conservation. Global Environment Facility, Washington DC.
Gibbons, J.R.H., 1981. The biogeography of Brachylophus (Iguanidae) including the description of a new species, *B. vitiensis*, from Fiji. J. Herpetol. 15 (3), 255–273.
Harlow, P.S., Fisher, M., Tuiwawa, M., Biciloa, P.N., Palmeirim, J.M., Mersai, C., Naidu, S., Naikatini, A., Thaman, B., Niukula, J., Strand, E., 2007. The decline of the endemic Fijian crested iguana *Brachylophus vitiensis* in the Yasawa and Mamanuca archipelagos, western Fiji. Oryx 41 (1), 44–50.
ICNB, 2000. Nature Tourism Strategic Framework 2000-2006-Parque Natural do Sudoeste Alentejano e Costa Vicentina. Instituto da Conservação da Natureza e da Biodiversidade, Lisboa.
ICNB, 2008. Plano de Ordenamento e Gestão do Parque Natural do Sudoeste Alentejano e Costa Vicentina.
ICNB, 2010a. Parque Natural do Sudoeste Alentejano e Costa Vicentina. Retrieved 28/02/2010, 2010, from portal.icn.pt/ICNPortal/vPT2007-AP-SudAlentejanoCostaVicentina.
ICNB, 2010b. Pesca lúdica no Parque Natural do Sudoeste Alentejano e Costa Vicentina.
ICNF, 2016a. PNSACV Map (online). Parque Natural do Sudoeste Alentejano e Costa Vicentina-Informação Geral. Instituto da Conservação da Natureza e das Florestas.
ICNF, 2016b. "Resolução do Conselho de Ministros n.º 11-B/2011, de 4 de Fevereiro. D.R. n.º 25, Série I, Suplemento." Legislação do ano 2011. Retrieved 03/03/2016, from. http://www.icnf.pt/portal/icnf/legisl/legislacao/2011/resolucao-do-conselho-de-ministros-n.o-11-b-2011-de-4-de-fevereiro.-d.r.-n.o-25-suplemento-serie-i.
INE, 2012. Censos 2011 Resultados Definitivos - Portugall. P. Instituto Nacional de Estatística, Lisboa, p. 366. Instituto Nacional de Estatística.
IUCN, 2009. IUCN Red List of Threatened Species. Retrieved 30/09/2009, 2009, from. www.iucnredlist.org.
Keppel, G., Tuiwawa, M.V., 2007. Dry zone forests of Fiji: species composition, life history traits, and conservation. N. Z. J. Bot. 45 (4), 545–563.
Korn, M., Green, A.J., Machado, M., García-de-Lomas, J., Cristo, M., Cancela da Fonseca, L., Frisch, D., Pérez-Bote, J.L., Hundsdoerfer, A.K., 2010. Phylogeny, molecular ecology and taxonomy of southern Iberian lineages of Triops mauritanicus (Crustacea: Notostraca). Org. Divers. Evol. 10 (5), 409–440.
Laurie, W.A., Uryu, H., Watling, D., 1987. A faunal survey of Yaduataba Island reserve with particular reference to the crested iguana (*Brachylophus vitiensis* Gibbons 1981). Domodomo 5, 16–28.
Morrison, C., Keppel, G., Thomas, N., Rounds, I., Harlow, P.S., 2009. Critically endangered Fijian Crested Iguana (*Brachylophus vitiensis*) shows habitat preference for globally threatened tropical dry forest. Pac. Sci. 63 (2), 223–242.
NBSAP, 1998. Fiji National Biodiversity Strategy and Action Plan. Fiji Government, Suva.
NOAA, 2009. Social Science for Marine Protected Areas. Retrieved 10/07/2009, 2009, from. January 2005. www.csc.noaa.gov/mpass.
NTF, 2008. National Trust Site Details. National Trust of Fiji Islands, Suva.
Olsson, P., Folke, C., 2001. Local ecological knowledge and institutional dynamics for ecosystem management: a study of Lake Racken Watershed, Sweden. Ecosystems 4 (2), 85–104.
Pinto, M.J.G., 1997. Habitats Naturais e de Espécies da Flora de Portugal: Sudoeste Serrano e Litoral. Unpublished report to the Instituto da Conservação da Natureza (ICN). Museu, Laboratório e Jardim Botânico da Universidade de Lisboa, Lisboa.
Pomeroy, R.S., Mascia, M.B., Pollnac, R.B., 2006. Marine Protected Areas: the Social Dimension. FAO Expert Workshop on Marine Protected Areas and Fisheries Management: Review of Issues and Considerations (12–14 June, 2006). FAO. Background Paper 3.
Qiu, W., Wang, B., Jones, P.J.S., Axmacher, J.C., 2009. Challenges in developing China's marine protected area system. Mar. Policy 33 (4), 599–605.
Sanchirico, J.N., Cochran, K.A., Emerson, P.M., 2002. Marine Protected Areas: Economic and Social Implications. Resources for the Future. Discussion Paper 02-26. R. f. t. Future. Washington.
Sayce, K., Shuman, C., Connor, D., Reisewitz, A., Pope, E., Miller-Henson, M., Poncelet, E., Monié, D., Owens, B., 2013. Beyond traditional stakeholder engagement: public participation roles in California's statewide marine protected area planning process. Ocean Coast. Manag. 74, 57–66.
Stewart, A.T.M., Fragoso, B.D.D., Clímaco, R., Icely, J.D., 2014. Evaluation of stakeholder perspectives on the management of the stalked barnacles (*Pollicipes pollicipes*) resource in the Parque Natural do Sudoeste Alentejano e Costa Vicentina, Portugal. Mar. Policy 43, 71–79.
Tawake, A., Parks, J., Radikedike, P., Aalbersberg, B., Vuki, V., Salafsky, N., 2001. Harvesting clams and data involving local communities in monitoring can lead to conservation success in all sorts of unanticipated ways: a case in Fiji. Conserv. Pract. 2 (4), 32–35.
Toonen, R.J., Wilhelm, T.A., Maxwell, S.M., Wagner, D., Bowen, B.W., Sheppard, C.R.C., Taei, S.M., Teroroko, T., Moffitt, R., Gaymer, C.F., Morgan, L., Lewis, N.a., Sheppard, A.L.S., Parks, J., Friedlander, A.M., 2013. One size does not fit all: the emerging frontier in large-scale marine conservation. Mar. Pollut. Bull. 77 (1–2), 7–10.
Trakolis, D., 2001. Local people's perceptions of planning and management issues in Prespes Lakes National Park, Greece. J. Environ. Manag. 61, 227–241.
Trigo, M.I., 2003. Participatory approaches to the integration of conflicting land uses within protected landscapes: A case study in the Parque Natural do Sudoeste Alentejano e Costa Vicentina, Portugal. International centre for protected landscapes. University of Wales, Aberystwyth. MSc: 122 pages.
Veitayaki, J., 1998. Traditional and community-based marine resources management system in Fiji: an evolving integrated process. Coast. Manag. 26 (1), 47–60.
Veitayaki, J., 2004. Empowering Local Communities: Case Study of Votua, Ba, Fiji. University of the South Pacific, Suva.
Walpole, M., Goodwin, H., 2001. Local attitudes towards conservation and tourism around Komodo National Park, Indonesia. Environ. Conserv. 28 (2), 160.
Waylen, K.A., Fischer, A., McGowan, P.J.K., Thirgood, S.J., Milner-Gulland, E.J., 2010. Effect of local cultural context on the success of community-based conservation interventions (Efecto del contexto cultural local sobre el exito de intervenciones de conservación basadas en comunidades). Conserv. Biol. 24 (4), 1119–1129.
Wignarajah, P., Stoker, B., 2004. Conservation in Yadua. Yadua Report 2004. Greenforce, Suva.
Wilhelm, T.A., Sheppard, C.R.C., Sheppard, A.L.S., Gaymer, C.F., Parks, J., Wagner, D., Lewis, N.A., 2014. Large marine protected areas – advantages and challenges of going big. Conserv.Conserv. Mar. Freshw. Ecosyst. 24 (S2), 24–30.