



Understanding perceptions of the social impacts of protected areas: Evidence from three NATURA 2000 sites in Greece



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ABSTRACT

The social impacts of Protected Areas (PAs) are increasingly recognized as a key issue that needs to be explored and combined with existing evaluation frameworks assessing the economic and environmental impacts of PAs. The present paper focuses on the subjective assessment of social impacts of PAs and how these perceptions are formulated. Results of an empirical study, implemented in three PAs in Greece, are presented. According to the study, individuals' perceived quality of life, trust in institutions, social trust and place attachment are the most important indicators influencing perceptions of social impacts. A main conclusion of the paper is that measuring social impacts is not sufficient for the planning and designation of a PA. Additional research is needed exploring the reasons behind these perceptions in order to plan actions minimizing negative impacts for local communities.

1. Introduction

Protected Areas (PAs) are the most widely applied policy tool for biodiversity conservation (Juffe-Bignoli et al., 2014). PAs have become increasingly important not just because of the need to conserve biodiversity but also because they are closely linked to climate change adaptation (Dudley et al., 2010; IUCN, 2012). In this context, a rapid increase of PAs designation has been observed internationally along with a tendency to re-establish existing ones.

Certain categories of PAs, such as national parks (IUCN category II) and strict nature reserves (IUCN Category Ia) are often accompanied by high socio-economic costs for local communities due to the significant changes in everyday activities for locals (eg Brockington and Wilkie, 2015; Cernea and Schmidt-Soltau, 2006; Jones et al., 2017). Furthermore, conflicts often occur between stakeholders regarding new regulations following the designation (Bennett and Dearden, 2014; Hattam et al., 2014) resulting in low levels of public acceptance and low compliance with regulations (Keane et al., 2008; Brangolo et al., 2017; Solomon et al., 2015). In order to resolve these conflicts, the importance of carefully exploring social aspects of PAs' designation is widely recognized and an increasing literature has emerged focusing on Social Impacts (SIs) of PAs (Andrade and Rhodes, 2012; De Lange et al., 2016; Jones et al., 2017; Kaplan-Hallam and Bennett, 2018; Zafrá-Calvo

et al., 2017).

Social impact assessment in PAs can assist in a more holistic understanding of their impacts. The Ecosystem Services approach and Impact Assessments could benefit by incorporating aspects of one another into their processes (Baker et al., 2013; Helming et al., 2013). Such an integration will allow better communication of key information regarding these services to policy makers (ie Nautiyal and Kaechele, 2007; Partidario and Gomes, 2013; Geneletti, 2013) underlying clearer links regarding the costs and benefits of ecosystems for society (Karjalainen et al., 2013). However, there is very limited discussion in terms of how ecosystem services can be linked with social impact assessment.

The importance of SIs of PAs has significantly grown especially since the publication of the Millennium Ecosystem Assessment (MEA, 2005) where the link between ecosystem services and their impact on well-being was underlined. As a result, an increase in studies measuring SIs of ecosystems services has been observed in recent years (De Lange et al., 2016; Franks and Small, 2016; Oldekop et al., 2016; Corrigan et al., 2018).

The Millennium Ecosystem Assessment (2005) identified five dimensions of well-being: a) security, b) basic material for a good life, c) health, d) good social relations and e) freedom of choice and action. The SIs of PAs may be also linked to broader issues, as underlined in the

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social impact assessment literature, such as ‘*the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of the society*’ (Burdge et al., 1995; Vanclay et al., 2015). Furthermore, the ‘Framework on Well Being in developing countries’ highlights the importance of capturing different dimensions of well-being including objective indicators and also their subjective evaluation by individuals (University of Bath, 2002; Wills and Hamilton, 2007; Tiliouine, 2007). Thus, the assessment of SIs can be divided in objective and subjective indicators (Woodhouse et al., 2015). Objective SIs are linked with standard well-being indicators, such as ‘health status’ and ‘poverty levels’ (OECD, 2017), and also certain aspects of cultural ecosystem services such as the number of new recreational activities due to the establishment of the PA and the frequency of their use (MEA, 2005). Subjective indicators, refer to assessments in which the opinions of individuals about these impacts are explored (Bryce et al., 2016). These include, for example, perceptions on ‘quality of life’ and ‘physical and mental health’ and are closely linked with subjective cultural ecosystem services. The exploration of this type of indicators is crucial because they refer to elements affecting both the level of local participation (Woodhouse et al., 2015) and the acceptance of PAs (Jones et al., 2012a, 2017).

Although the literature on objective social impact indicators has increased, subjective assessment of these impacts is limited. Furthermore, there are very few studies analyzing factors influencing perceptions of these subjective SIs. In this context, the aim of the present paper is to explore individuals’ perceptions of the SIs of PAs and identify explanatory factors influencing these perceptions. These issues are investigated in three Greek PAs through a quantitative social survey.

2. Factors influencing perceptions of SIs

In order to identify potential explanatory factors, evidence is drawn from existing paradigms and studies which have successfully linked certain indicators with perceptions of public policies (i.e. Dunlap et al., 2000; Nisbet et al., 2008; Putnam et al., 1993).

A starting point is the level of *environmental awareness* (Courrau, 2005; Staub and Hatzios, 2004; Tempesta and Otero, 2013) and *participation in decision-making processes* for a PA as they have been proven to have an impact on individuals’ perceptions of SIs (Courrau, 2005; Staub and Hatzios, 2004). Higher environmental awareness may reduce perceived negative SIs, as individuals will identify multiple benefits for a proposed environmental policy (Jones and Clark, 2013). Furthermore, the levels of *social capital* (Putnam et al., 1993), referring mainly to *social trust, institutional trust and social networks* are closely linked with collective action (Ostrom, 1998) and perceptions of environmental policies (Jones, 2010). Communities with low levels of institutional and social trust tend to consider that management frameworks for natural resources will be ineffective and this is expected to also have an influence on perceptions of the impacts of a PA (Jones et al., 2017). Social networks are equally important as they influence the level and type of information that reaches individuals (Pretty, 2003) and have a direct effect on the level of trust towards institutions that provide this information (Jones and Clark, 2014; Wolf et al., 2010). In addition, communities with weak social networks are often less aware of the aim of a conservation area and less informed about the benefits from the designation resulting in negative perceptions of the PA (Jones et al., 2012a). In close relation to social capital is also individuals’ *quality of life* as it is often linked in a positive way with the tendency to participate in collective activities (Putnam, 2000).

Perceptions concerning the *risks* with regard to natural resources and *perceived threats* have also been linked with individuals’ reactions towards environmental policies (Baldassare and Katz, 1992; O’Connor et al., 1999; Thomassin et al., 2010). Thus, environmental perceptions of related risks, such as the loss of biodiversity, are expected to influence the level of SIs perceived by citizens. This is because ‘risk

awareness’ can be an important predictor of the intention of individuals in relation to environmental issues (O’Connor et al., 1999). In the case of PAs, this means that perceptions of the risks from the loss of biodiversity are expected to influence individual beliefs about proposed PAs and their impacts. Another set of explanatory indicators is linked with *place attachment* referring in particular to emotional bonds and place related symbolic meanings (Devine-Wright, 2011). In the case of PAs, the specific geographical area may have a high value for the local community (Charles and Wilson, 2009; Pomeroy et al., 2004) which can take different forms (i.e. affective, functional and cognitive) (Lin and Lockwood, 2014) and is expected to influence perceptions of locals for the PA (Pomeroy et al., 2004). As a result, place attachment parameters have been identified as predictors of pro-environmental public engagement and perceptions of PAs (Buta et al., 2014).

Finally, *demographics* also need to be taken into consideration in order to develop a framework, which can accurately capture explanatory factors for perceived SIs. Several demographic factors are expected to influence SIs as perceived by citizens and also the level of acceptability. *Gender* is one of them (Coad et al., 2008), mainly because differences in use of resources and power may mean that there will be different impacts between men and women. Other demographic factors that may affect perceptions of SIs are *age and education* (Karki, 2013). The *location* of a community or a household (in relation to the PA) is also expected to influence perceptions (Karki, 2013) along with the *frequency of use of the PA*. Perceptions about positive SIs will be influenced, for example, by how close a community is to new facilities provided by a PA and how often they use them (Ezebilu and Mattsson, 2010).

3. Methods

The influence of the above-mentioned parameters on perceived SIs was tested through a social survey in three Greek PAs. The three sites were initially selected because of their common protection status as they are all included in the NATURA 2000 Network. We also selected the specific sites in order to explore SIs along with explanatory parameters in the context of areas with different socio-economic structures and also with a different management framework. The three sites are described below:

a) *Prespes National Park* is situated in the North-West border area of Greece (Size: 327 km²). It was first established in 1974 and new expanded restriction zones were confirmed in 2009. The local communities around the park are dependent on agriculture (Trakolis, 2001), focusing on the cultivation of beans with some varieties registered as ‘products of protected geographical indication’. Livestock farming is also an important traditional economic activity in the Prespes National Park, while tourist activities have increased in the past years. For some residents, tourism is a supplementary source of income, with the majority having more than one job. The management of the area is the responsibility of a Management Actor consisting of members from the central government and local stakeholders.

b) *Samaria National Park* (Crete) is 48.5 km² and has been awarded with the European Diploma of Protected Areas of the Council of Europe. It was established in 1962 while protection zones are currently being designated. A large part of the National Park is the Samaria Gorge which is a significant tourist attraction with an entrance fee. The surrounding communities are mainly dependent on livestock farming and they benefit significantly from the high levels of tourism in the area attracted by the gorge, especially in the coastal part. Agriculture is limited due to the mountainous character of the area. Management of the PA is the responsibility of a Management Actor in which state representatives and members of local stakeholders participate.

c) *Chortarolimni-Limni Alyki & Thalassia Periochi* (Limnos) is 182.32 km² and was first designated in 2006 with final regulations confirmed in 2011. The surrounding population is mainly dependent on agriculture and fishing while tourism is very limited. No management

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