Environmental Science & Policy 54 (2015) 287–296

Contents lists available at ScienceDirect

Environmental Science & Policy

journal homepage: www.elsevier.com/locate/envsci

Conservation opportunity in biodiversity conservation on regulated private lands: Factors influencing landowners' attitude

Sristi Kamal [a,*], Marcin Kocór [b], Małgorzata Grodzińska-Jurczak [a]

[a] Institute of Environmental Sciences, Jagiellonian University, Gronostajowa 7, Krakow 30-348, Poland
[b] Institute of Sociology, Jagiellonian University, Grodzka 52, Krakow 31-044, Poland

ARTICLE INFO

Article history:
Received 22 December 2014
Received in revised form 26 May 2015
Accepted 21 July 2015

Keywords:
Private land
Biodiversity conservation
Landowners' attitude
Conservation opportunity
Poland

ABSTRACT

Contemporary approaches to involve private land in biodiversity conservation focus primarily on voluntary strategies. However, regulatory private land conservation continues to be dominant in several developing and transitional countries, especially in case of private land within protected areas. Poland, the study site of this research, represents such an example where private land conservation is restricted to only those within protected areas. Use of regulatory approach can have an influence on landowners' attitude toward private land conservation that is in contrast to attitudes toward voluntary approaches. The paper presents the results of a quantitative survey conducted with private landowners in three forms of protected areas in Poland (a national park, a landscape park and a Natura 2000 site) to assess their attitude toward private land conservation and analyze factors (socio-demographic, economic and external) that influence this expressed attitude. This being the first research on private land conservation in Poland, the results characterized a typical private landowner in Poland whose land is part of a protected area. It also revealed that except for education and landowners' conservation ethic, none of the socio-demographic and economic variables had a strong influence on building conservation opportunity. However, external factors such as the type of protected area and imposed regulations did have an influence. Finally, the research highlighted the lack of sufficient institutional structures and existing gap in communication between the stakeholder groups which need to be addressed in building conservation opportunity for effective management of such mixed models of protected areas.

1. Introduction

1.1. Private land in biodiversity conservation

Attempts to reduce and halt global biodiversity loss has not been very successful so far and the debate to find effective ways to reverse this trend continues in the conservation field (McShane et al., 2011; Wilkie et al., 2006). The increasing development pressures along with other challenges such as resource extraction, poverty and climate change makes the search for solutions more challenging (CBD, 2010). Protected areas have been the functional units of biodiversity conservation and globally their numbers are on a constant rise, more so in the last two decades (Kamal et al., 2014; Robbins et al., 2006). However, the geographical juxtaposition of protected areas and human habitation often becomes a source of human–nature conflict. The challenge lies in protecting biodiversity while meeting the needs and expectations of local people (Knight et al., 2010). This becomes very obvious in the case of regulatory conservation on private land, especially private lands that are inside the boundaries of protected areas. In such cases, it becomes imperative to balance conservation opportunity, which is a community's capacity or willingness to participate in conservation with conservation priority, which is the ecologically identified need to conserve an area (Knight and Cowling, 2007; Knight et al., 2010).

Involving private land in biodiversity conservation has been a growing global conversation (Doremus, 2003; Figgis, 2004; Knight, 1999; Langholz and Krug, 2005; Paloniemi and Tikka, 2008). Protected areas are limited in their geographical extent, connectivity, their susceptibility to human activities including downgrading, and their financial constraints in protecting every endangered ecosystem and landscape (Mascia and Pailler, 2011; Mora and Sale, 2011). In contrast, private lands can provide larger, contiguous landscape and connect the mosaic of isolated protected areas (Kamal and Grodzinska-Jurczak, 2014). This fact is being gradually recognized in several countries as they explore the use of

* Corresponding author.
E-mail addresses: sristi.kamal@uj.edu.plm (S. Kamal), marcin.kocor@uj.edu.pl (M. Kocór), grodzinska-jurczak@uj.edu.pl (M. Grodzińska-Jurczak).

http://dx.doi.org/10.1016/j.envsci.2015.07.023
1462-9011/

various tools and incentives to engage private lands, which Kamal et al. (2014) classifies as either voluntary or involuntary tools. Regulatory form of conservation on private land, which is involuntary, is perhaps one of the oldest tools that involve private land in biodiversity conservation. Although current approaches in private land conservation tries to engage more voluntarily than involuntarily through use of tools such as conservation easements and conservation contracts, nevertheless regulatory private land conservation still continues to be one of the predominant forms of conservation in several countries (ELI, 2003; Mayer and Tikka, 2006; Scroter-Schlaak and Blumentarth, 2011). Regulatory conservation might have its benefits such as effective monitoring and more accountability in the degree of protection offered to biodiversity which are often challenging for voluntary conservation; however, its biggest challenge is its command-and-control approach that conflicts with the inherent nature of private lands such as property rights and land use (Brockington, 2004; Cernea, 2005; Kamal et al., 2014; Merenlender et al., 2004). It can also be assumed that involuntary form of private land conservation will inevitably influence the attitudes of landowners toward private land conservation. Research on landowners' attitude toward private land conservation is well documented in literature (Bourke and Luloff, 2008; Ernst and Wallace, 2008; Joshi and Arano, 2009; Koontz, 2010; Langholz and Krug, 2005); however, it is mostly restricted to voluntary conservation. Additionally, there is also literature on private land conservation through voluntary encouragement in otherwise command-and-control policies (Bean, 2002; Langpap and JunJie, 2003; Olive and Raymond, 2011). This research focuses on examining attitudes toward private land conservation among landowners who have experienced regulatory conservation and analyze factors that could influence this expressed attitude. It undertakes Poland as a case study, a country where the only form of private land conservation is the regulatory form inside of protected areas.

1.2. Conservation on private land in Poland

Poland presents an interesting case study as it emerges from its troubled political past of communism and imbibes its progressive future as a Member State of the European Union (EU). Nature conservation and protected areas have been an intricate part of Poland's recent history, with Bialowieza designated as the first Forest Reserve in 1921 and later transformed into the first national park of Poland in 1932 (Bialowieza National Park, 2007). Thereafter, Poland has witnessed a surge in the number and types of protected areas such as nature reserves and landscape parks. After its accession to the EU in 2004, Poland had to adopt EU's umbrella legislation on biodiversity conservation called Natura 2000, which has led the establishment of another type of protected area: the Natura 2000 sites (Boltromiuk, 2010; Pietrzyk-Kaszynska et al., 2012). Natura 2000 is a compound legislation of the Birds Directive and the Habitats Directive where sites are designated as Special Areas of Conservation (SACs) or Special Protection Areas (SPAs) (Klodzinski, 2012). The site designation process in Poland was based entirely on the ecological priority for biodiversity protection and together the sites cover almost 20% of Poland's territory, often overlapping with other forms of protected areas (Cent et al., 2007; Grodzinska-Jurczak et al., 2012). In the past, the protected areas in Poland did engulf private lands but the percentage was not very significant. For instance, except for Biebrzanski National Park where 52% of the park area is under private ownership, all other national parks have less than 25% of private lands within their borders (GUS, 2013). In case of landscape parks, the proportion of private land is expected to be higher than national parks, although data of such nature is not available currently. However, with the recent designation of Natura 2000 sites, the percentage of private lands within protected areas is speculated to significantly increase (Kamal et al., 2014).

Currently, private land in biodiversity conservation in Poland is restricted to the regulatory model, where private lands that lie within the boundaries of protected areas follow similar management regime to that of the protected area. This may also be the reason why private lands and landowners' attitude and expectations have received limited attention in biodiversity conservation research, as regulatory conservation often does not have to rely on landowners' willingness to participate. Additionally, the regulatory model is not supported by any policy or financial tool that focuses on private lands, which makes the situation challenging for managers of such protected areas (Kamal et al., 2014). Acquisition has been the only tool available for managers but often government agencies are constrained by limited budget. The civic sector functions at a relatively small scale and are often restricted in their actions to advocacy and activism (Cent et al., 2013). Even in the case of Natura 2000, which is relatively non-restrictive in its site management, insufficient information dissemination has resulted in numerous instances of human-nature conflict (Grodzinska-Jurczak and Cent, 2011). In order to mitigate such conflicts, it is imperative to understand local residents' attitude toward biodiversity conservation and protected areas and focus on the factors that can influence this attitude. Literature and research on private land conservation in Poland is scant in international as well as national domains, and little data is available on private land inside of protected areas or on stakeholders' attitude. This research is therefore first of its nature in Poland as it investigates private landowners' attitude toward inclusion of private land in protected areas and analyzes some of the intrinsic and extrinsic factors that could influence this attitude.

2. Methodology

2.1. Site selection

The study sites in Poland were chosen based on the data available from the Central Statistical Office of Poland's annual report (2012) using the following criteria:

- *Cover three of the most prominent forms of protected areas in Poland*: a national park, a landscape park and a Natura 2000 site.
- *Total size of the protected area*: set at a minimum of 15,000 ha in order to ensured reasonably sized protected area with a considerable overlap with human habitation.
- *Percentage of private land inside of the protected area*: for national parks, data on private ownership within the protected area boundaries was available and since national parks tend to be more exclusive a minimum of 15% of human habitation was set as a limit. In case of landscape parks and Natura 2000 sites, data on the percentage of private land within a park boundary was not available. Instead, the percentage of arable land was taken as an indicator of agricultural and private land. The minimum percentage of arable land for both forms of protected areas was set at 50%.
- *Minimum overlap with other forms of protected areas*: almost all protected areas in Poland overlap partially with Natura 2000 sites. Hence, landscape parks and national parks with less than 15% of overlap with a Natura 2000 site were prioritized. For the Natura 2000 site, those that were only under Natura 2000 and no other forms of protection were considered.

Accordingly, Biebrzanski National Park in the north-east of Poland (Podlaskie voivodeship; established 1993), Skierbieszowski Landscape Park in the south-east of Poland (Lubelskie voivodeship; established 1995) and Dolina Gornej Wisly Natura 2000 site in the