

Funding of protected areas: A pure public task?

Case studies from Austria

Grazia Withalm

Protected areas (PA) are nowadays established and managed increasingly by local non-profit organisations, local or regional stakeholders. The public sector, however, is still seen as the main responsible for PA funding according to literature. The reason therefore is that on a first glance the goods and services produced by PAs are defined as (impure) public goods. On a second glance, however, PAs provide a lot of different services, which have very diverse characteristics, and thus can not only be defined as public goods but can be classified also as club goods, private goods or common pool resources (commons). Consequently, the question arises if there is a mismatch of public and private funding. The aim of this study is, thus, first to analyse the international and national (Austria) situation of PA funding. Second, an empirical analysis aims at investigating the sources of PA funding and their accordance to a “publicness” indicator of PAs. This indicator has been developed on the basis of the ecosystem goods and services provided by the respective PAs. The results show, on the one hand, that PA funding is a public task according to the public goods theory. On the other hand, the empirical analysis shows a little mismatch of public and private funding. An increased expenditure of civil society and private companies could contribute, hence, to a generally more sustainable funding for PAs.

1 Introduction

Establishment, management, and especially funding of protected areas (in the following PAs) have been considered as a core public task ever since their first worldwide appearance in the middle of the 19th century (Payer/Zangerl-Weisz 1997). Recent studies (EEA 2012; Jones-Walters/Čivić 2013; Jungmeier 2014; Payer/Zangerl-Weisz 1997; Weixlbaumer 2006) have shown that nature conservation and PAs have been the subject of several paradigm shifts over the past forty years. In particular, responsibility shifted more to the civil society consisting of local stakeholders, private households, but also non-governmental and non-profit organisations for the establishment and management of PAs (Bertzky et al. 2012). Still the public sector is considered to be the main responsible for funding of nature conservation.

Nevertheless, an international study exploring the sustainability of PA funding shows that the public sector has difficulties to fulfil its task (Emerton et al. 2006). The reasons are, on the one hand, the unequal relationship between the rapidly growing number of PAs and the sluggish public budget (Emerton et al. 2006). On the other hand, mergers of budget accounts for similar responsibilities and a growing number of tasks at the same time have negative influences on the public budget left for PAs (Emerton et al. 2006). Moreover, this international study emphasises the fact that the funding of PAs never has been solely public. The EEA (2012) arrived at the same conclusion and stated that private organisations already have been responsible for funding PAs since their beginning in the early twentieth century in Europe. Today, sources for PA funding range

from public funds through revenue from fees (entrance, membership) and sale of merchandize, to funding completely by private sponsors and donors (Emerton et al. 2006: 9-11,27-74; WCPA 2000: 31-46).

In Austria, responsibility for nature conservation lies with the nine states, according to the distribution of powers in the federal constitution. The bulk of financial resources for the realisation of PAs comes, thus, from the state budgets with some federal funding as well (Tiefenbach et al.1998). In addition, international funds (LIFE and Rural Development 2014-2020) and tax revenues for mining certain resources are available for funding nature conservation activities (ibid.). Expenditures for the conservation of species and landscapes are declining in the last ten to 15 years (Statistics Austria 2016). The reasons are on the one hand institutional changes and austerity policies because of the financial crisis. At the same time, the number of PAs and their size have developed in the opposite direction: they are increasing (EEA 2012: 102p.). There is a growing gap between public sector funding and public tasks to fulfil. The development of the nature conservation funding in Austria is, thus, comparable to the international situation.

As public spending for nature conservation is limited by the mentioned economic developments, the private (co-) funding of PAs is becoming more formal. With an increasing number of PAs in Austria (EEA 2012:102) and worldwide (Bertzky et al. 2012), the question arises: Who should be responsible for financing PAs – the public or the private sector? This study attempts to answer this question using the public goods model (Heath 2011: 23-8). This model suggests that the public sector provides certain goods sometimes more efficiently than the private sector. The analysis follows a dual approach. First, the current state of PA funding as well as national and international trends are analysed, focusing on funding mechanisms and sources. Second, based on empirical analysis it will examine in which way funding sources and funding responsibilities match. For this purpose, responsibility will be evaluated using characteristics of the bundle of ecosystem services produced in the relevant PA. The second part of the analysis is based on a sample of four Austrian PAs. The results of this analysis allow coming to conclusions valid not only for Austria but also on a more general level.

This short chapter summary concentrates on the empirical analysis in the second part of the chapter. A summary of the funding situation is already given within this introduction.

2 Publicness – An Indicator for Funding Responsibility

The actual form of a PA depends on the topographical, economic, political and social surroundings of the area.

Hence, every single PA is unique in terms of size, habitat and ecosystems conserved, management and ownership structure, restrictions on human activities within and near its boundaries, as well as acceptance and level of support by local population and politicians (Dudley 2008, EEA 2012). All PAs have, however, at least one aim in common: effective biodiversity conservation (Emerton et al. 2006). In pursuing this aim, PAs provide benefits for human well-being in form of ecosystem services (MA 2005). These ecosystem services arise mostly from natural processes and are widely considered to be consumable for free. Against this background, ecosystem services are often defined from an economic point of view as public goods, differing from other goods because of their non-excludability and non-rivalry in consumption (cf. Costanza 2008).

From an economic perspective ‘[...] a protected area can be seen as a business operation’ (WCPA 2000: 7) or it can be perceived as a commodity by itself, which can be consumed by its visitors (Getzner/Jungmeier 2009). Concentrating on the first option this paper assumes that the entity “Protected Area” is a productive business operation. Its products are goods and services in the form of ecosystem services. Ecosystem services thus can be classified according to their (non-)excludability and (non-)rivalry in consumption (Costanza 2008). Consequently, all ecosystem services can be classified as either private, club, common or public good (ibid.). Based on these assumptions, it will be assumed that public funding can be justified, if the ecosystem services produced are not excludable from consumption. In this case, according to the public goods model, the market fails to provide ecosystem services in an efficient way (cf. Heath 2011).

The responsibility for funding PAs therefore depends on the goods characteristics of the ecosystem services it produces. Nowadays, PAs are multifunctional areas, which do not only aim at conserving nature but also have a positive influence on, for example, the economic development of a region and the social life of its residents. PAs, thus, provide a bundle of various ecosystem services (EEA 2012; Jones-Walters/Čivić 2013; Jungmeier 2014; Payer/Zangerl-Weisz 1997; Weixlbaumer 2006). The challenge is to ascertain who should be responsible for funding a PA based on the ecosystem services provided. To deal with this, an indicator of “publicness” will be introduced. The term “publicness” is described in the Oxford Dictionary as the quality, condition, or fact of being public (Oxford Dictionary 2015). For the purpose of this paper “publicness” shall be defined as the share of ecosystem services provided by PAs that can be categorized as public goods. The “publicness” indicator takes into account the public ecosystem services and evaluates them according to their contribution to the PA’s objectives, because funds are mainly spent in these areas. Based on these considerations, it is argued that public responsibility for funding PAs is determined by the “publicness” of PAs.

3 Approach

Four Austrian PAs have been chosen as objects of research, based on four main characteristics: PA category, year (period) of establishment, stakeholders involved, and size of the PA. The objects of inquiry are the “Nature Reserve Rheindelta”, the “Nature Park Sparbach”, the “National Park Hohe Tauern” and the “Biosphere Reserve Großes Walsertal”. Analysing the four PAs, in a first step the ecosystem services produced in these areas will be identified based on by their legal regulations, management plans, guiding principles, or descriptions in official documents (e.g. on their homepages) and accomplished projects. In a second step they are classified according to the public goods model. The third step consists of the evaluation of the PAs “publicness”. Applying the “publicness” indicator, makes it then possible to determine the principal responsibility for funding the PA. The fourth and last step then evaluates the actual funding schemes of the four PAs and establishes how they correspond to the “publicness” of these PAs. As a result of the evaluation it becomes possible to identify if there is a mismatch of public and private funding.

To compare the four PAs, a common evaluation framework is required. As already mentioned in the sub-section “Publicness – An Indicator for Funding Responsibility”, every PA is unique, but they all have at least one goal in common: the effective conservation of biodiversity. Since it is difficult to determine biodiversity conservation the argumentation is based on the assumption that PAs share another feature: they are all multifunctional (cf. Weixlbaumer 2010). This means a PA never has only one objective, but serves various functions to which ecosystem services can be assigned. These functions are: (1) regulation functions (e.g. climate and soil regulation, flood and disease control), (2) provisioning functions (e.g. provision of food and raw materials or ingredients for medical purposes), (3) habitat and support functions (e.g. assurance of livelihood for indigenous species, maintenance of genetic diversity), (4) cultural and scientific functions (e.g. protection of natural and cultural heritage, recreation, mental and physical health, environmental education, research) and (5) regional development functions (e.g. basis for sustainable development, reduction of economic inequalities, tourism) (Weixlbaumer 2010: 19; TEEB 2016).

4 Results

The analysis has shown that public expenditure for PAs is declining over time. Declining public expenditure does, however, not reduce the principal public responsibility to fund PAs. This is shown by the results of the empirical analysis (see Table 1). The public responsibility derives from the fact that the business operation “Protected Area” provides ecosystem services as its main output. These servic-

es are predominantly public goods in the sense that clear property rights are missing (no excludability) and everyone can consume these services to the same extent (no rivalry). Nevertheless, PAs provide also ecosystem services such as food and raw materials which are clearly private services and goods (see Provisioning Service in Table 1).

Even though PAs provide a mixture of public and private goods, common and club goods, the funding of PAs is a core public task because the provision of private ecosystem services, e.g. timber, is strongly determined by the provision of basic public ecosystem services, such as maintaining the nutrient cycle. For example, a tree cannot grow when the basic functions of the ecosystem, e.g. maintaining the nutrient cycle, are not sufficiently sustained. The difficulty is that these basic functions are generally not named in the PA management plans or their legal regulation. Because of this lack of information the “publicness” analysis could not consider all ecosystem services produced in the PAs. As a result, the “publicness” indicator seems to suggest exactness, where it does not exist and the results should therefore be interpreted with caution.

5 Summary and Conclusions

Nowadays PAs – manifold areas set aside for nature conservation – are established increasingly based on private initiatives or at least with intensive citizen’s participation. The PA management is also supported increasingly by local non-profit organisations, stakeholders and private households. The common goal of all PAs is, however, the conservation of biodiversity and the maintenance of ecosystem services, which can be classified to a large extent as (impure) public goods. Taking a closer look at PAs, it becomes clear that they provide diverse goods and services which are not only public goods but can be classified additionally as club goods, private goods or common pool resources (commons). Against this background, this chapter aimed at (1) analysing the different sources of PA funding (public, private, donations, sponsoring) and their development, and (2) investigate empirically the sources of PA funding and their correlation to a “publicness” indicator of PAs. This indicator has been developed on the basis of ecosystem goods and services provided by the respective PAs.

The analysis’ results show that the funding of PA is a core task of the public sector according to the public goods model (see Table 2). At the same time the results also show that the public sector spending has been negatively influenced by international economic developments. Seen from an international perspective, it seems likely that particularly private funding mechanisms could potentially grow in importance, especially if the actual willingness of private households and companies to pay for private and club goods provided by the PAs could get harnessed. The

PA Function	Good Class.	Rheindelta		Sparbach		Hohe Tauern		Großes Walsertal		
		ES ¹	Importance	ES ¹	Importance	ES ¹	Importance	ES ¹	Importance	
Regulation	Climate regulation	Public								
	Natural Hazard mitigation	Public	flood protection	medium				protective function of woods	high	
	Water regulation	Public	hydrological balance	medium				ecological function of waterbodies	high	
	Erosion protection	Public								
	Soil formation	Public								
	Nutrient regulation	Public								
	Waste treatment	Public								
	Pollination	Public								
	Biological control	Public								
Provisioning	Food & Water	Private	fish, prey	low	prey	medium	agricultural products	medium	agricultural products (hunting, fishing & alpine farming)	medium
	Raw materials	Private			timber	medium				
	Genetic resources	Commons								
	Medicinal & Bio-chemical resources	Commons								
	Ornamental resources	Private								
Habitat & Supporting	Refugium function	Public	special birds habitat	high	wildlife reserve	high	wildlife reserve, habitat management	high	wildlife reserve	medium
	Genpool protection	Public	protection of litter meadow & natural grasslands	high			protection of genetic diversity	high	protection of genetic diversity and litter meadow	medium
Cultural Function	Aesthetic Information	Public					conservation of the landscape characteristic	high	natural scenery	low
	Recreation	Commons or Club	biking, swimming, running, walking, ...	medium	urban citizens & family attraction	high	cultiavation and signage of hiking trails	medium	leisure infrastructure	medium
	Cultural and artistic information	Public								
	Spiritual & historic information, cultural heritage	Public					landscape conservation by sustainable cultivation	high	landscape cultivation, preservation of customs	high
	Science and education	Public or Club	field trips, information center	medium	information center, field trips, Nature Park School	high	information center, National Park Academy, field trips, scientific publications	high	informtion center, basic research, nature and environmental education in local schools	high
Regional Development	Sustainable Development	Public			regional marketing	high	regional marketing	medium	regional marketing	high
	Tourism	Club	touristic activities	low			maintenance of alpine refuge	medium	tourist activities	medium
	safeguarding of jobs	Private					NP regional employer	medium	common development of operation areas	medium
Public vs. Private (in %)	„Publicness“		65 : 35		50 : 50		65 : 35		65 : 35	
	Funding		95 : 5 ²		95 : 5 ²		90 : 10 ³		90 : 10 ³	

Table 1: “Publicness” analysis of representatively chosen PAs and comparison with the funding situation
Source: Compilation and computation by author based on Costanza 2008, De Groot et al. 2002, De Groot et al. 2010; Rhine Delta Nature Conservation Association 2016; State of Vorarlberg 2016; Naturpark Sparbach 2015;

Austrian Association of Nature Parks 2016; Kremser 2003; Nationalparkrat 1995; State of Vorarlberg 2005; Biosphärenparkmanagement 2011.

Notes: (1) Ecosystem Services | (2) Estimated values because of lacking data | (3) Average value over the available data

expenditure of civil society and private companies could supplement the public sector funding and thus contribute to a generally more sustainable funding for PAs.

Nevertheless, from a moral point of view, it can be argued that the funding of PAs has to be public (see Table 2). As the “publicness” analysis showed, PAs provide a lot of services that are not visible and also not tangible. These so called regulation services, however, are basic ecological processes and thus form the basis for all other services and goods produced in PAs. If these basic services were treated like commodities, it is likely, that market activities could lead to the exploitation of natural resources and thus endanger the satisfaction of basic human needs. Public sector intervention is necessary in this case to prevent the exploitation of natural resources by limiting the scope of the market.

	Description (positive) Who are and were the actors?			Justification (normative) Why should the state intervene?		
	State	Civil society	Market	Equality	Morality	Efficiency
Provision	Takes care of transaction costs	Citizen commitment		Poverty alleviation	Regulative ES are necessary to provide for basic human needs	ES are mostly public goods
Funding	Special subsidies	Supports public funding				Free-rider problem, information failure
Regulation	Nature conservation laws, international commitments				Public sector sets limit, for the commodification of nature	Property rights missing

Table 2: Res Publica Table

Source: Own representation based on Unger et al. 2014.

In conclusion, whoever takes over the funding responsibility– the public, the private or the autonomous sector, should be assessed regularly, based on the sustainability of its expenditure, to make sure that the money spent, really contributes to effective biodiversity conservation.

References

- Austrian Association of Nature Parks (2016). 50 years of nature parks in Austria. Accessed 8 January at <http://www.naturparke.at/>.
- Bertzky, B., C. Corrigan, J. Kemsey, S. Kenney, C. Ravilious, C. Besançon and N. Burgess (2012). Protected Planet Report 2012: Tracking progress towards global targets for protected areas. Gland, Switzerland: IUCN and Cambridge, UK: UNEP-WCMC.
- Biosphärenparkmanagement (2011). Leitbild. Thüringerberg, Austria. <http://www.grosseswalsertal.at>.
- Costanza, R. (2008). Ecosystem services: multiple classification systems are needed. *Biological Conservation*, 1(141),350–352.
- De Groot, R.S., M.A. Wilson and R.M.J. Boumans (2002). A typology for the classification, description and valuation of ecosystem functions, goods and services. *Ecological Economics*, 41, 393–408.
- De Groot, R.S., R. Alkemade, L. Braat, L. Hein and L. Willemen (2010). Challenges in integrating the concept of ecosystem services and values in landscape planning, management and decision making. *Ecological Complexity*, 7, 260–272.
- Dudley, N. (ed.) (2008). Guidelines for Applying Protected Area Management Categories, Gland: International Union for Conservation of Nature (IUCN).
- Emerton, L., J. Bishop and L. Thomas (2006). Sustainable Financing of Protected Areas: A Global Review of Challenges and Options, Gland, Switzerland and Cambridge, UK: IUCN.
- European Environment Agency (EEA) (2012). Protected areas in Europe – an overview. EEA Report, No. 5/2012, Copenhagen, Denmark.
- Getzner, M. and M. Jungmeier (2009). Integrative management of protected areas – a new scientific discipline?. In M. Getzner and M. Jungmeier (eds), *Improving Protected Areas: Proceeding in the Management of Protected Areas series*, Vol. 1, Klagenfurt, Austria: Verlag Johannes Heyn, pp. 11–19.
- Heath, J. (2011). Three normative models of the welfare state. *Public Reason*, 3(2), 13–43.
- Jones-Walters, L. and K. Čivić (2013). European protected areas: past, present and future. *Journal for Nature Conservation*, 21(2), 122–124.
- Jungmeier, M. (2014). In transit towards a third generation of protected areas? Analysis of disciplines, forming principles and fields of activities by example of recent projects in protected areas in Austria. *International Journal of Sustainability*, 6(1–2), 47–59.
- Kremser, H. (2003). Nationalpark Managementplan – Kernzone. Salzburg, Austria: National Park Hohe Tauern.

- Millennium Ecosystem Assessment** (2005). *Ecosystems and Human Well-Being: Synthesis*, Washington, DC: Island Press.
- Nationalparkrat** (1995). *Nationalpark Hohe Tauern Leitbild*, Salzburg, Austria. www.hohetauern.at.
- Nature Park Sparbach** (2015). *Our philosophy*. Accessed 22 September at <http://www.naturpark-sparbach.at/>.
- Oxford Dictionaries** (2015). Definition of 'publicness'. In *British and World English*, Oxford Dictionaries. Accessed 3 January 2016 at <http://www.oxforddictionaries.com/>.
- Payer, H. and H. Zangerl-Weisz** (1997). Paradigmenwechsel im Naturschutz. In H. Zangerl-Weisz, V. Winiwarter, H. Schandl, H. Payer, H. Walter and M. Fischer-Kowalski (eds), *Gesellschaftlicher Stoffwechsel und Kolonisierung von Natur: Ein Versuch in Sozialer Ökologie*. Amsterdam, Netherlands: G+B Verlag Fakultas, pp. 223–240.
- Rhine Delta Nature Conservation Association** (2016). *Nature Reserve Rhine Delta*. Accessed 4 January at <http://rheindelta.org/>.
- State of Vorarlberg** (2005). Regulation by the Province Government over the 'Biosphere Reserve Großes Walsertal', LGBl.Nr. 33/2000, 46/2005.
- State of Vorarlberg** (2016). Protected areas in Vorarlberg. *Natura 2000*. Accessed 7 January at <http://www.vorarlberg.at/>.
- Statistics Austria** (2016). Expenditure of general government by function (COFOG) 2011–2014. Accessed 2 January 2016 at <http://www.statistik.at/>.
- The Economics of Ecosystems and Biodiversity (TEEB)** (2016). *Ecosystem services*. <http://www.teebweb.org/>.
- Tiefenbach, M., G. Larndorfer and E. Weigand** (1998). *Naturschutz in Österreich*, Vienna, Austria: Environment Agency Austria.
- Unger, B., Groot, L. Van der Linde, D.** (2014), *RES PUBLICA: An introduction to the project*, Utrecht, unpublished.
- Weixlbaumer, N.** (2006). Auf dem Weg zu innovativen Naturschutz-Landschaften-Naturverständnis und Paradigmen im Wandel. In K.H. Erdmann, H.R. Bork and T. Hopf (eds), *Naturschutz im gesellschaftlichen Kontext, Naturschutz und biologische Vielfalt*, Issue 38, Bonn-Bad Godesberg, Germany: Bundesamt für Naturschutz, pp. 7–27.
- Weixlbaumer, N.** (2010). Großschutzgebiete in Europa – Ansprüche, Entwicklungen und Erfolgsfaktoren. In *Verband der Naturparke Österreichs* (ed.), *Neue Modelle des Natur- und Kulturlandschaftschutzes in den Österreichischen Naturparks*, Graz, Austria: Verband der Naturparke Österreichs, pp. 14–23.