

Management Strategies in National Parks: Implications for Sustainable Regional Development

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1. Introduction and background

With larger shares of land devoted to conservation, especially in the framework of an internationally acknowledged national park according to the World Conservation Union's (IUCN) guidelines for category II (cf. Dudley, 2008; Thomas and Middleton, 2003), conflicts arising from the spatial distribution of costs and benefits considered unfair for local residents often determine the debate preceding the establishment of a protected area. Since 1992, the international community has recognized this increasing gap between bearing the costs and enjoying the benefits of conservation by signing the Convention on Biological Diversity.¹⁾ Besides the conservation of biodiversity from a natural science perspective, this treaty emphasized the fair sharing of the benefits of conservation. Especially poor regions or countries which are often "biodiversity hot spots" in terms of an abundant biodiversity should be empowered to gain their fair share of conservation benefits, for instance, in terms of payments for ecosystem services schemes, or by enjoying sustainable regional development based on protected areas.

The establishment of protected areas, especially national parks, is increasingly considered to contribute to the Convention's aims by enhancing sustainable regional development both in developing and developed countries (Andam et al., 2010; Mose, 2007; Getzner, 2010a; Job et al., 2005). While the main aim of protected areas such as national parks are the conservation of biodiversity and the natural dynamics of ecosystems, informing and educating visitors, recreation, and scientific research are also highly valued, both in management terms and for the benefit of local communities. National parks are not islands cut off from the outside world. Rather, they are embedded in a regional and local spatial context (Raymond et al., 2009). Municipalities and the wider region adjacent to a park can 'use' the park for build-

ing up a positive ecological image of the region, and as a unique selling proposition for pursuing all elements of regional development (e.g. in the fields of tourism, Che, 2006; Simpson, 2008), and as a way of attracting new residents, and new businesses (Lane, 2009).

The specific contributions of the establishment and management of national parks to regional sustainable development are in general not easily understood and analyzed. While it seems straight forward to assume that national parks significantly add to the conservation of biodiversity – a crucial pillar of sustainable development – the picture becomes more elusive when we focus on the social and economic dimension of sustainable development. While there is empirical evidence that national parks can have positive impacts on poverty reduction and regional development (cf. Andam et al., 2010; Getzner, 2010b), the huge differences regarding these impacts among protected areas of the same category such as national parks point to the diverse management frameworks for achieving the national park goals. The use of specific management strategies and instruments may be especially significant for the broad range of positive impacts that national park status can bring (Upton, et al., 2008; Wells and McShane, 2004). The practical management of protected areas is increasingly considered an 'ongoing intervention towards sustainable development' (Jungmeier et al., 2010; Barker and Stockdale, 2008) but the problems inherent in such interventions have also become apparent (Ferraro, 2001). A major element in the development of a 'brand' for a national park is – besides enhancing the credibility of (ecological) national park policies (Bednar-Friedl et al., 2011) – a joint regional management and development strategy drafted and implemented with the help and inclusion of all stakeholders (Cai, 2002).²⁾ As regional developments in and around protected areas such as national parks usually depend on ecotourism and on the management of visitor flows (cf. Bushell

and Eagles, 2007; Butler and Boyd, 2000), the park management has to cope with two potentially conflicting aims. On the one hand, park management has to conserve biodiversity and therefore restrict access to sensitive areas of the park's ecosystems, and generally limit the impacts of tourism on ecosystems. On the other hand, carefully used and specific management instruments and frameworks may contribute to sustainable tourism development by offering specific national park experiences for visitors. Behrens et al. (2009) have shown that these conflicting aims can be made congruent in order to complement each other by the choice of appropriate management frameworks.

From an economic point of view, the management of national parks fundamentally includes frameworks for the use of productive resources in quantitative as well as qualitative terms. For instance, management strategies may influence the size and character of the activities of enterprises in the park's region, as well as the availability of consumptive and non-consumptive uses of natural resources by households inside and outside the park (Gren and Isacs, 2009). Park management can also determine the degree to which the wide spectrum of ecosystem services inside and outside the park can effectively be used by households (e.g. direct consumption of resources, recreation) and companies (e.g. resources for local services, production or tourism).

The above background stresses the importance of the choice of management strategies used by national park administrations. The aims of the current paper are twofold. First, the potential dimensions of management frameworks and strategies are discussed both in theory, and in practice – the latter by comparing two prominent European national parks, the Jostedalbreen national park in Norway, and the Hohe Tauern national park in Austria. Both national parks can be considered to have gained the status of national heritage, and are well-known in both countries. As both parks were established a number of decades ago, the long time span allows for a thorough analysis of the management frameworks and the regional development that has taken place since their inception. Second, the paper discusses the connections between the choice of the management strategies and the contribution of these strategies to sustainable regional development, again by using the two case studies.

The paper is structured as follows. Section 2 discusses important dimensions of national park management strategies, and presents a first insight into possible connections between these strategies and

sustainable regional development from a theoretical perspective. Section 3 details the management models of the two national parks chosen for the current study, and compares the national approaches with their specific advantages and disadvantages. Section 4 summarizes and discusses the results, and concludes with a number of important general conclusions for national park management strategies.

2. Dimensions of governance and management strategies in national parks

2.1 Governance and management of resources: selected strategies towards sustainability

Bureaucracies, institutions and markets are often not able to cope with the complexity and linkages in natural systems (Vatn, 2005). This limitation is, among others, caused by fragmentation in the different levels of public administration and the organization of society: the picture of a monolithic “public sector” acting as a benevolent dictator aiming for the maximization of social welfare is a simplifying assumption of economic models but not entirely usable for concrete management problems in protected areas.

Biodiversity conservation tries to overcome problems of the de facto constitution and functioning of the public sector by a range of different instruments, processes and tools of protected areas management – many of which are based on holistic management approaches embedded in appropriate governance structures. With reference to protected areas, Graham et al. (2003, 2f.) define governance as the “interactions among structures, processes and traditions that determine how power is exercised, how decisions are taken, and how citizens or other stakeholders have their say.” It is therefore important for PA managers that they have a clear concept and understanding of governance and are able to distinguish it from “management”. Whilst management addresses what is done about a given situation, governance addresses the question who makes those decisions and how these should be implemented, including responsibility and accountability of decision-makers (Getzner et al., 2010). “Good governance” as an underlying management strategy may crucially influence whether the protected area can achieve its objectives, is able to fairly share benefits

and costs, and seeks and gains sufficient support from local communities and stakeholders.

Rydin (2006) sees participation and networking among the different resource users (stakeholders) and the management authorities as a strategy to overcome fragmentation and therefore as a crucial governance principle, including networking, a joint management plan (strategy), a common understanding of the relevant problems, the establishment of a joint knowledge base, resources (“capabilities”), and social capital to create common norms (cf. also recently Enengel et al., 2011). These principles should contrast with individual maximization of benefits, and may be embedded in a national regulatory policy. However, Ostrom (1990) argues against national state regulation due to the lack of information, of systems for monitoring and sanction mechanisms. She stresses the need to investigate how external policies influence the local actors’ ability to self-governance.

These two diverging paradigms of resource management – national frameworks vs. self-governance – also point to different management strategies for protected areas, one emphasizing the local and regional self-organization of resource users, while the other relies on a standardized regime of aims and processes. In a complementary view, those two paradigms may form the principle of co-management of resources which is commonly defined as “the sharing of power and responsibility between government and local resource users” (West and Brechin, 1991) and could therefore be understood as another strategy to improve protected area (PA) management, based on efficiency, effectiveness, fairness, and legitimacy (cf. Brechin et al., 2003; Keulartz and Leistra, 2008; Lockwood et al., 2006; Sandström et al., 2008; Wondolleck and Yaffee, 2000; Leibenrath, 2008).

Thus, PA management that does not consider social justice and participation will not create effective and sustainable management of resources in the long run (Brechin et al., 2003; Hanna et al., 2008). In line with these arguments PA management planning has changed during the last 40 years from a rational comprehensive planning approach with little local participation to an adaptive and participatory planning process using a realistic set of objectives and measures that have to be adapted in time and space according to evaluation results (Lockwood et al., 2006). To build effective protected areas it is necessary to connect the PA management to wider area-use planning and resource management systems beyond the park’s boundaries (Lockwood et al.,

2006). In this respect we can view protected areas and the surrounding region as large scale experiments for the integration of conservation, sustainable development and local participation (Brechin et al., 2003; Hanna et al., 2008; Mose and Weixlbauer, 2007). When conservation is understood as a redistribution of resources among stakeholder groups, the legitimacy requirements for PA management are strongest and so are the potential conflicts (Engelen et al., 2008).

2.2 Concrete management strategies of national park administrations

It can be assumed that there is no “automatism” in regional development, i.e. the establishment of a national park does not lead per se to sustainable regional development (Getzner, 2010a). Development is, first of all, based on a regional development strategy.³⁾ If the strategy is to be successful, it is crucial that the protected area, e.g. a national park, has to be considered and involved in drafting, promoting and pursuing such a strategy. Second, as the focus of the current paper is on the national park strategies and policies contributing to sustainable development, the management strategy (model, approach) may also influence regional development in different ways.

As outlined above, a national park management model or strategy rests on a range of governance dimensions, the most important of which are described in the following (cf. Graham et al., 2003; Lockwood et al., 2006; Worboys et al., 2005). Each description also includes a discussion of the potential impacts of the strategy on regional (sustainable) development.

Objectives and mission of the protected national park

It is of eminent importance in which direction the national park management wants the park to be developed. The objectives and the mission of a national park may lie in the fields of nature conservation, visitor education and information, facilities and scientific research. However, if the national park management sticks solely to those fields, regional development will not be included as a (regional) objective that national parks may support. For instance, building a network with local companies and using their goods and services for the diverse

demands of the national park are not only important for the embedding of the national park in the regional context (Fortin and Gagnon, 1999), but also serve as a direct link between the park and the surrounding communities.

Decision making inside the park

It seems that the “culture of decision making” within a national park can positively impact regional development. The national park can be considered a major public venture with decision making structures that should have clear responsibilities regarding decision making. It is nevertheless important that the national park is an open organization allowing for debates and discussion, information exchange, and mutual respect (cf. Gbadegesin and Ayileka, 2000). These elements might not be fully applicable in strictly hierarchical organizations. Flat hierarchies and open decision processes where stakeholders have the chance to actually influence decisions may be advisable. In addition, it seems to be important to which extent the national park management is an organization with its own powers, and how far decisions regarding the park can be made autonomously (Dressler et al., 2006).

Furthermore, it is crucial to consider PA management as a learning system embedded in a surrounding community of stakeholders with changing aims and demands, and a changing environment of biodiversity (ecosystems and species). Adaptive management is therefore crucial which includes participatory decision making and empowerment especially of marginal stakeholder groups.⁴ In particular, regional development together with efficient and effective conservation of biodiversity can only take place if decision making processes consider the diverse stakeholder interests and the decision making process offers platforms for discussion and mutual exchange of viewpoints and information.

Integration into other policy fields

One of the main aims of integrative management in protected areas is the integration of national park policies, objectives and aims into the local, regional and national political decision making. Very often, the national park may itself function as a stakeholder based on legal obligations, and therefore can intervene in administrative processes outside the park. However, it is also advisable that the national park management itself tries to get involved, for instance, in regional economic policies, land use decisions

outside the park, and infrastructure projects. With such an approach, national park policies can be considered in other policy fields, and can therefore contribute to good governance in these areas.

Integration of “outside” agendas into the management model

The national park management may not only think about fulfilling its objectives in terms of nature conservation, but can also include “outside” agendas into its decisions. In many cases there might exist a national park decision in which regional development can be considered right from the start (Brown, 2002), for instance by installing a separate department within the park for regional development and tourism, or by offering tourism packages in cooperation with local and regional businesses. This can act as a discussion link between the park and local business, and allow mutual learning to take place.

Uni-dimensional vs. multi-dimensional objectives of the park

This issue is closely related to the ones above. Uni-dimensional park objectives can be pictured as concentrating on a single aim, especially regarding nature conservation. However, regional development might be supported if the park recognizes multi-dimensional objectives in terms of visitor education and information, visitor management and facilities. Most important, though, is the credibility and ecological integrity of the national park policies (Bednar-Friedl et al., 2011) which can be implemented by a variety of multi-criteria decision making tools (cf. with respect to forest ecosystems the recent overview by Ananda and Herath, 2009).

Inter- and trans-disciplinarity of the park

In many parks, the majority of national park employees will be educated in natural science (ecology, biology, landscape planning). However, the national park team will certainly be more successful and effective if employees from other scientific disciplines and backgrounds are considered as well.

The park’s budget and financing

This issue touches upon a sensitive question on how much of a park’s budget can/should be financed by public or private funds (Emerton et al., 2006). Public funding often assures a certain management quality

and objectivity of national park policies. Certainly, private funding may influence national park policies and decisions contrary to effective ecological management. This is especially the case if the park devotes too many resources (man power, time, money) to setting up sponsorship programs which may not be effective in the long run, or in developing its own income raising programmes. Furthermore, a concentration on “charismatic species” might redirect funds based on economic considerations rather than ecological ones, therefore undermining the credibility of PA policies with potentially negative effects on the perception of the national park by the general public and by visitors to the park (see Eagles, 2002, for a full discussion of these issues).

Compensation and incentives for land owners and rights holders

In national park policies, it is of major importance to consider incentives for the actions of land owners. National park boundaries are only “administrative” borders in the sense that ecosystems most often do not end at this administrative boundary, nor do (animal) species obey such borders. The national park management therefore has to implement (or, at least, think about) incentive-compatible frameworks for decision – making by land owners and rights holders regarding the conservation of biodiversity on their land, or at least leave their rights untouched (Brännlund et al., 2009; Niemela, et al., 2005; Young, et al., 2005). For instance, Austrian federal state regulations fully compensate land owners for their “loss of property value” caused by policies of authorities to conserve biodiversity. Otherwise, without adequate compensation, there is a permanent economic incentive for land owners to reduce biodiversity levels on their property due the potential uncompensated loss in property values. Therefore, the national park management needs to have a spatial model of biodiversity levels and linked management measures in order to have full information about the interactions between different land uses (Albers and Robinson, 2007).

Participation of and communication to stakeholders

The last dimension of national park strategies discussed here is probably the most important point in any successful biodiversity conservation and national park management strategy (Reed, 2008; cf. Tippet et al., 2007) as well as in general regarding the successful implementation of conservation strategies on a national level (Apostolopoulou and Pan-

tis, 2009). The participation of, and communicating with, stakeholders is most crucial for management effectiveness, and there are a wide range of benefits from stakeholder participation in regional development and policy analysis (Scott and Fannin, 2007). It is not only the effectiveness of ecological policies. Campbell and Vainio-Mattila (2003) show that involvement of stakeholders in national park decision making is crucial for regional and community development.

3. Empirical results

3.1 Characterization of the case study national parks in Norway and Austria

Jostedalbreen national park, Norway⁵⁾

Jostedalbreen national park (NP) covers an area of 1,310 km² and consists mainly of the Jostedalbreen glacier, the largest glacier in continental Europe. Most of the park is above 800 meters above sea level; the central glacier plateau is at a height of 1,600-1,700 metres. The glacier is about 100 km long and 8-15 km broad. Ski tours to peaks and across the glacier’s length are popular activities. However, the numerous glacier arms, which may descend to about 300 meters above sea level, are the main attractions of the Jostedalbreen national park for most visitors. Tourism companies organize guided glacier walks of varying lengths and other glacier related activities here during summer. Jostedalbreen NP has two main entry points and three visitor information centers. In 2009, 11 small enterprises offered tourism activities, such as walks, climbs, and ski tours, to around 20,000 tourists. Approximately 5-600,000 tourists visit the area each year (Fylkesmannen i Sogn og Fjordane, 2010). Table 1 presents full details regarding both national parks considered in this case study.

The management of Jostedalbreen national park is done according to a ‘traditional’ Norwegian management model.⁶⁾ National authorities hold the responsibility for the management, while the regional County Governor’s (CG) office is the executive body. The county government is a decentralized office of the national authorities, and the National Park Manager is employed at the environmental department at the CG’s office. He/she is executive officer for several protected areas, and on average 30% of his time is dedicated to Jostedalbreen national park. In addition, there is a nature inspector connected to

the park employed by the Norwegian Nature Inspectorate, which is part of the national Directorate for Nature Management. The inspector is based in a local community near the national park and also holds the responsibility for a number of smaller PAs near the area, in addition to the national park. Approximately 90% of the inspector's time is used on Jostedalbreen NP. The three authorized national park information centers are partly funded by the national authorities, and their managers, who are seasonally employed by the foundation which operates each center, also constitute an important part of the overall management organization. Compared to international standards, the management model for Jostedalbreen national park is characterized by a low-cost, low input approach, with only 1.2 permanent positions dedicated to the direct management of the area. Another central characteristic of the Norwegian management model is its decentralization (fragmentation) with several separate bodies responsible for particular management tasks. Total staff, including visitor centers and national authorities' administration, amounts to 8 all-year positions and 25-30 seasonal workers. The seasonal workers are all employed at the national park centers. In addition to these numbers, there are several nature guides employed in private activity companies. The national park management is responsible for conservation and information. Tasks such as destination marketing and regional management are outside the national park management.

the administrations of Jostedalbreen (Norway) and Hohe Tauern (Austria) national parks

Hohe Tauern National Park, Austria⁷⁾

Hohe Tauern national park, established partly in 1983, covers 1,834 hectares of Alpine forests, grasslands, glaciers and rock formations (see Table 1 for details). The park is the largest national park in the Alps. Its elevation ranges from 800 meters above sea level up to the highest summit in Austria, the "Großglockner", at close to 4,000 meters. The area was an early focal region for natural sciences (in the 18th century) and an early destination for alpine tourism and discovery (in the 19th century). Under Austrian law, access to mountains and forests is free to anyone. The park can be entered from many different points. For conservation purposes, however, access is restricted in a number of special reserves (core zones). Due to the various entry points, visitor numbers in the park are only roughly estimated to about 1.7 to 2.0 million visitors per year. Accurate figures can only be given for specific points and infrastructures. For instance, the scenic road "Glocknerstrasse" is used by some 200,000 vehicles (including buses, amounting to 900,000 visitors) each year. The new Tauernwelt visitor center could attract about 115,000 guests in its first year. The park is an extremely attractive tourist destination in an accessible and well established tourism region.

Under the Austrian constitution the national park is established by federal legislation. Integrating areas in three different federal states (Carinthia, Salzburg, and Tirol), the national park was established under three different laws and is run by three administrations. The political representative of each federal

Table 1: Characterization of the case study areas in Norway and Austria

	<i>Jostedalbreen NP (Norway)</i>	<i>Hohe Tauern NP (Austria)</i>
<i>Size</i>	1,310 km ²	1,834 km ²
<i>Ownership of land</i>	72% state owned, 28% private	83% private, 16% owned by the federal Austrian forest company and 1% other owners (NGOs)
<i>No. of visitors (2008 est.) and entry points</i>	5-600,000 visitors per year, two main entry points	1.7 to 2.0 million visitors per year, many entry points
<i>Overnight stays in the NP region (2008 est.)</i>	550,000	1 million
<i>Settlements</i>	No inhabited areas inside the park, villages in the surrounding region area form the informalized "national park's region"	No inhabited areas inside the park, villages in the surrounding area form the formalised (labelled) "national park's region"
<i>Institutional capacity: Total number of official park employees</i>	Year round: 8 positions; seasonal: 25-30 (visitor centers); excluding guides	Over 80 (including guides)

Source: Authors' compilation based on Getzner et al., 2009; Storm et al., 2009; personal information by

state and the Austrian minister of the environment form the "national park council", an overall steering committee for the park. On the regional level, local

political entities, NGOs and landowners are represented on several park boards. The park is run in total by 80 permanent staff members and about 20-40 seasonal employees and volunteers. The park has responsibilities for conservation, environmental education, park interpretation, research and communication and, to some extent, regional management. In the Carinthian part of the park, the NP's management is also the organizing body of tourism and destination management, including marketing.

3.2 A comparison of management models and their importance for regional development

In section 2.2 of the current paper, we highlighted a range of important dimensions of national park management with respect to their significance for sustainable regional development. As discussed above, tourism may be a crucial driving force of sustainable regional development not only in terms of employment and income, but also regarding social (and environmental) development.

Table 2 presents a classification and description of the management strategies and models implemented in both national parks. It becomes clear that the Austrian model can be classified as a "high pressure/high intensity" management model with the full range of tasks of the management of protected areas (national parks).

On the other hand, the Norwegian management model might be described as a "low intensity" strategy with only few tasks for the PA management. Norwegian national parks are, contrary to their Austrian counterparts, not considered as a tool for regional development (Miljøverndepartementet, 2009). The approaches towards regional development and tourism are also quite different. Hohe Tauern national park is more in favor of planning and both influencing and performing tourism activities and marketing. It is pro-active. Jostedalbreen national park's management is more likely to rely on private initiatives. It is reactive. Both parks prove that touristic development and biodiversity conservation create synergies rather than axiomatic contradictions (Jungmeier et al., 2006). Interestingly, the Norwegian national park has also experienced growth in tourism despite the lack of a regional integrated strategy for destination development (Sogn og Fjordane fylkeskommune, 2010; Storm et al., 2009). One of the main reasons for this might be the prominent status of Jostedalbreen as a prominent part of Norway's national heritage.

Before discussing the linkages between management strategies and sustainable regional development, the regional significance of tourism in both parks should also be highlighted. Table 3 presents an overview of indicators of tourism in both national parks regions. The indicator of intensity of tourism (number of visitors per local resident) is significantly higher in Austria than in Norway. Furthermore, the duration of stay and options for additional activities not directly connected to the national park are significantly higher in the Austrian national park.

The question of how much the management model and strategy of the national parks has influenced regional development cannot be answered readily based on the statistics and data available. For instance, Getzner (2010b) has argued that the impacts of establishing a national park may be detected only 5 to 7 years after the establishment, provided that effective management (including marketing) is in place. Furthermore, it might be hard to find indications for the regional economic impacts at all since regional development is certainly overlaid by a range of external factors. However, we can argue in two directions that are – at first sight – competing concepts.

(1) Pressure on ecosystems and high numbers of visitors may constitute an important driving force for the establishment of a protected area, especially a national park. Historically, the examples of both national parks in Austria and Norway show that endeavors to introduce nature conservation are based on the willingness to avoid negative developments such as the construction of hydro-power stations in sensitive ecosystems, or the impacts of high visitor demand for nature experiences in pristine ecosystems. From this perspective, the prior motive for the establishment and management of a park is nature conservation to avoid harmful effects to biodiversity. Management strategies and models can therefore primarily be thought of as a reaction to external developments and pressure.

(2) But many protected areas are situated in peripheral regions. Management models and strategies therefore can be designed to fulfill multiple objectives in terms of attracting new visitors and therefore contributing to sustainable regional development based on tourism. Tourism can then be associated with the development of niche food and heritage products. Management strategies can, in these cases, be related to internal pressures, while retaining conservation aims.

Table 2: Management strategies at Jostedalbreen (Norway) and Hohe Tauern (Austria) national parks

	<i>Jostedalbreen NP (Norway)</i>	<i>Hohe Tauern NP (Austria)</i>
<i>Objectives and mission of the national park</i>	Nature conservation, information of visitors	Nature conservation, visitor information and education, scientific research, regional development (tourism)
<i>Management focus</i>	Nature conservation, information	Nature conservation, environmental education, tourism management and marketing (full range of tasks of PA management)
<i>Integration of organisation</i>	Fragmented, i.e. responsible representatives placed at several (national) offices with different management tasks	Three regional national park administrations ^a with a full integration of all major management tasks
<i>Decision making inside the park</i>	Responsible managers in diverse county government offices; hierarchical / bureaucratic	Diverse / balanced system of the board of directors, councils and committees of stakeholders, regional networks
<i>Integration of activities / Integration into other policy fields</i>	High level of integration on nature conservation policy, low level of integration into other policy fields	High integration of both nature conservation and regional development; national park is itself an important stakeholder and driver of regional development
<i>Integration of "outside" agendas into the management model</i>	None	Partly, regional development integrated as long as nature conservation is not impeded; regional network of commercial partners
<i>Unidimensional vs. multidimensional objectives of the park</i>	Rather unidimensional	Rather multidimensional
<i>Inter- and transdisciplinarity of the park</i>	Ecology, law; transdisciplinarity	Ecology, law, education sciences, management sciences, tourism; transdisciplinary direction
<i>The park's budget and financing</i>	Central government's budget	Central and regional governments' budget, private financing by sponsoring, donations, research and nature conservation projects
<i>Compensation and incentives for land owners and rights holders</i>	Compensation for private land owners	Diverse contractual agreements between public and private landowners and the park
<i>Participation of and communication to stakeholders</i>	Information, consultation	Differentiated networks of various levels of participation (information, consultation, decision-making)
<i>Participation and governance</i>	Linear hierarchy from ministry to NP manager, mutual trust based on dialogue	Fundamental decisions are taken by regional committees, and regional and national boards
<i>External anchorage</i>	Local and national	Local, regional and national
<i>Management activity</i>	Low intensity (low pressure) – few management tasks	High intensity (high pressure) – full range of PA management tasks and instruments

a Each of the Austrian federal states (Carinthia, Salzburg, Tyrol) hosts a national park management and visitor center.

Source: Authors' compilation based on Getzner et al., 2009; Storm et al., 2009; personal information by the administrations of Jostedalbreen (Norway) and Hohe Tauern (Austria) national parks

While this picture of the two poles of management approaches might be considered intriguing, our results point to a third, synthesizing viewpoint. While the original establishment of the two national parks in Austria and Norway in terms of the legal institutionalization certainly has its roots in conflicts between commercial land use and nature conservation, both national parks have developed and adapted their management models over time that account for the specific ecological, economic and social dimensions of regional development.

In Norway, the institutional framework and the legal competencies of the central and local governments led to a fragmented management system. Regional development based on nature tourism has until recently not been a priority target for national park administrations. Furthermore, pressure by visitors on the ecosystems is concentrated on few entry points to the national park. A differentiated management system is therefore not necessary to manage visitors and avoid harmful effects on the environment.

Table 3: Employment and regional/local income based on national park tourism

	<i>Jostedalsskreen NP (Norway)</i>	<i>Hohe Tauern NP (Austria)</i>
Total number of jobs (including part time jobs) in activity tourism	120 ^a	4,400
Tourism intensity (overnight stays per resident in national park communities)	13.6	16.8
Tourism intensity (total number of visitors per resident in national park communities)	14.8	33.6
Tourism season	Mainly summer tourism	Year-round tourism
Total income from activity tourism	2,4 million EUR ^a	n/a
Total income from accommodation	17,283 million EUR ^b	n/a
Total gross production value (value added) in the tourism sector	n/a	118,354 million EUR ^c
Number of activity companies operating inside the NP	11	^d
Number of activity companies operating in adjacent areas	5 ^e	^d
Number of (all-year) hotels / pensions	3	514
Number of (seasonal) enterprises (camping, restaurants, hotels etc.), including activity companies	100-150	2,880

a Rough estimate based on average from four local enterprises.

b Source: Aall et al., 2003.

c Rough estimate based on average production value per job in the tourism sector.

d There are many local companies that offer services (e.g. guided tours) inside and outside the national park. There is, however, no statistics available for such companies. The national park also operates a dense network of "national park partners" including local businesses, NGOs, municipalities, and authorities. Generally, all activities inside the park have to be coordinated with the national park administration.

e All of the 11 companies which operate inside the national park also have activities in adjacent areas.

Source: as in Table 2

An additional argument in the Norwegian context is certainly the high proportion of public land within the national park boundaries. As nature conservation in the national park is a major public objective, and with a smaller population living in the national park region, the number of stakeholders and thus the complexity of relations between the national park administration and land owners are certainly limited. To fulfill its objectives in terms of nature conservation and visitor management, the current national park management strategy seems to be sufficient. However, if the focus of the national park is to be changed, e.g. towards a more pronounced role in sustainable regional development, the management system unavoidably has to become more complex to allow for a broader range of protected area management tasks and instruments.

On the contrary, the Austrian system of national parks – while nature conservation has been on the agenda in the first place – is explicitly directed towards regional development and the comprehensive involvement of all stakeholders. While the IUCN national park category does not a priori focus on regional development, the Austrian national parks have all been established on the understanding that they also should contribute to regional development. Mose and Weixlbaumer (2007, p. 15) stress that Austrian national parks are also “considered to be an element for integrated regional development in rural areas”. While this aim does not necessarily involve direct action by the national park administration, the Austrian management strategies all include some references to and take account of development. Some of the Austrian national parks have been successful in promoting regional sustainable development, even to a point where visitors have to be intensively managed in order to avoid harmful effects on ecosystems.⁸⁾

4. Discussion, summary and conclusions

This paper has examined two European national parks to explore the roles of park management systems as regional development players. The parks have different but related ecologies. They have – inevitably – legal, institutional, and economic differences, related to historic circumstances and recent developments of national frameworks. While they have a similar primary goal – the conservation of biodiversity – the range of management activities and strategies is different.

Comparing the two national parks, two regional dimensions become apparent. First, conflicts and diversity of land ownership is much more pronounced in the Austrian national park. This has led to the implementation of complex participation, negotiating and decision-making structure with committees, several decision taking boards, and balanced competencies between the three regional governments involved. Due to the high proportion of public land in the Norwegian park, decisions are taken in a much ‘flatter’ system with less complexity, while accounting for local stakeholder participation. Second, pressure from tourists is much higher in Austria. Not only has the region long been a tourist destination, the national park actively manages and attracts tourists by a diverse range of programs. The Norwegian park is under much less pressure from tourists. Destination management is also not pronounced, management therefore concentrates on biodiversity conservation as the primary objective.

The main similarities and differences between the two management models in this project may be summed up as:

(1) The management model in both national parks is, in part, a result of the legal and administrative structure of the society they belong to. The federal state structure in Austria and the national state structure in Norway imply a more geographic or area focus in Austria and a sector politic approach in Norway.

(2) The Norwegian system has less formality, complexity and fewer interventions than the Austrian one, and therefore more participation through informal personal contacts with the national park manager. This may point to the special historic, political and economic context in Norway, e.g. low management budgets, fewer basic pressures and demands, fewer conflicts.

(3) Both national park managements in our project function as brokers handling conflicting pressures. The Austrian system is to a large extent formalized, e.g. through the NP council, through written policies, while the Norwegian system includes informal broking, adjusting reactions to individual cases.

The merits of the Austrian model appear strong and most scholars also support the idea of an integrated model for managing protected natural areas. On the other hand, the Norwegian management model functions well in its particular setting. The contemporary trend for outsourcing and sub-contracting paradoxically makes the Norwegian model increasingly relevant for many areas. The Norwegian model is, in several areas, a more informal model than the Austri-

an, which has more formalized routines and strategies. This may imply that the Norwegian model relies more on the person in charge and his/her abilities to coordinate, get the overview and involve relevant stakeholders. This may make the Norwegian model more fragile, but also more adaptive to new rules and situations.

Regarding the connection between the management model (strategy) and regional development, the paper shows that contextual factors play an important role in the development and design of PA management organizations. Legal and administrative structures are found to be of special importance. This is an aspect which has not been highlighted in the academic literature on management of protected areas and the shift towards their role in regional development. Our findings also show the importance of area conditions in validating specific models. All in all, for promoting sustainable regional development, the Austrian 'high pressure – full range' management model is certainly better suited to achieve this goal. On the one hand, an integrated approach towards tourism and destination management is necessary to concentrate and target resources to attract visitors. On the other hand, complex management structures are needed to cope with the huge numbers of visitors, and to conserve biodiversity while at the same time allowing for manifold recreation activities in the park.

Regarding future research and management issues, the world of protected area governance, like the governance of sustainable tourism, is in a process of change, with many new ideas being explored. This paper is a snapshot in time of two related but different systems. Both are being increasingly affected by financial pressures on the public sector, a process noted and commented on in depth by Eagles (2002). A common trend in both parks is partnership development, seeking to bring the private and public sectors together in partnership. McCool (2009) expresses the complex issues involved even in the title of his paper, "Constructing Partnerships for Protected Area Tourism Planning in an era of Change and Messiness". Haukeland (2011) found that even in the relative stable environments of Norwegian protected areas, there is local dissatisfaction with, and distrust of, protected area managements. Over the whole management plan process hangs the specter of climate change – forecast to impact biodiversity, tourism flows, tourism planning, and agricultural landscapes (see for example, Weaver, (2011), Scott, (2011) and Dickinson et al (2011). Governance issues are likely to be increasingly demanding of

researcher's time. This should not be seen as a negative trend. The introduction to this paper floated the idea of protected area managements being a form of large scale experiment in sustainable development, of protected areas managements as community learning machines. Research is likely to be demanding – but exciting (Hall, 2011, Bramwell and Lane, 2000).

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- 1) The current paper leaves out the question of efficiently selecting sites for conservation (see e.g. Ando et al., 1998; Parks et al., 1995; Polasky et al., 2001; Costello and Polasky, 2004) but concentrates on distributional issues in terms of opportunities for regional sustainable development.
 - 2) Beunders (2006, p. 130) emphasizes the interdependency between PAs and their surrounding regions, and claims that “[t]he success of tourism depends on the ability of the wider region to develop into a competitive destination”.
 - 3) A regional development strategy can also consist of the “non-existence” of such a strategy. As such, development will also take place in some direction that does not necessarily have something to do with the national park; or, it can also

exclude the park from being part of the development concept.

- 4) The kind and intensity of participatory frameworks in national park management certainly depends on the stage of the “life-cycle” of the protected area; certain national park management tasks might need less participation while others are inherently participatory decision making and management processes (see Getzner et al. (2010) for a broad overview).
 - 5) Information compiled from Miljøverndepartementet (1992), Storm et al. (2009), and from the Jostedalbreen national park administration.
 - 6) Over the last decade there have been several initiatives towards new NP management strategies in Norway, from increased local participation to full local management authority. The model for Jostedalbreen NP is still the most common. From January 2010, all NPs may be managed locally, if all relevant municipalities and county administrations have reached a local agreement (which is yet not the case at Jostedalbreen NP).
 - 7) Information compiled from Floimair and Retter (1995), Getzner et al. (2009) and from the Hohe Tauern national park administration.
 - 8) It has even been proposed that some areas or tourism targets should be “demarketed” (cf. Beeton and Benfield, 2002).
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