

Outdoor recreation, biodiversity and climate change adaptation: challenges for protected area management

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Introduction

Outdoor recreation destinations have to develop strategies for a sustainable development that include the conservation of biodiversity, adaptation to climate change and the reduction of greenhouse gas emissions by using renewable energy. Based on previous findings (Lupp et al. 2013), the aim was to raise awareness among different stakeholders in outdoor recreation destinations for these issues. In a participatory approach using scenarios with a timeline up to 2030, integrated strategies were developed by stakeholders. Challenges to be tackled were increasing visitor numbers, integrating climate change mitigation and adaptation as well as better protecting biodiversity. A major focus was to integrate the use of renewable energies in sensitive and valuable protected areas. The three German case study areas Southeast Rügen Biosphere Reserve, Feldberg Lake District Nature Park and the Large-Scale Conservation Project Feldberg-Belchen-Oberes Wiesental served as case study regions.

Materials and Methods

To develop and analyze strategies, a spatial scenario method described in Starick et al. (in print) was applied. It allows the integration of stakeholders and participation in all steps of the scenario development. Using the spatial scenario method, drivers that determine possible future states can be evaluated, understood, and strategies to react can be developed. Based on previous stakeholder work (Lupp et al. 2013), important drivers were identified and two scenarios in line with Braun (2009) were developed and implemented by stakeholders in the study areas (Table 1).

	Wellness	Adventure
Climate Change	IPCC A1B (IPCC 2007)	
Energy policy targets	30% renewable share of electricity production by 2030 (BMU 2012)	
	Large power plants	Small decentralized
Visitor numbers	+20% overnight stays, 50% more day visitors (set by stakerholders and project team)	
Visitor increment by	Elder persons	Younger persons

Activities	Hiking, (E-)biking, reduction of winter sport activities	Hiking, biking, different adventure sport activities, more demand for winter sports
Infrastructure	Well maintained trails, easy access	Infrastructure for adventure activities, trails for each activities
Mobility	Preference for public transportation	Preference for car use
Visitor awareness	No acceptance of landscape changes	Acceptance for landscape changes, wind turbines are also used for adventure sports

Table 1: Drivers of the two scenarios “Wellness” and “Adventure”, scenarios based on Braun (2009)

Results

First, stakeholders rejected planning in the protected areas at all. After a while, they realized that it would be impossible to keep visitors away from the attractive sites like mountain peaks or shorelines situated in the protected areas and tried to find solutions to manage visitors and place infrastructure for the different recreation needs.

Renewable energy was not integrated to a large extent, although e.g. win turbines were considered to be acceptable from an aesthetic point of view and demanded by visitors for adventure sports facilities at least in the “Adventure Scenario”. While energy crops like corn, cereals and also short rotation coppice were not considered appropriate, alternative feedstock for biogas plants like wild flowering plant mixtures were perceived to be able to generate synergies and could also generate values for tourism and tolerable in the study areas with their high share of protected areas (e.g. E-bike tours to a biogas plant running with alternative energy crops, alternative energy plant labyrinths). One idea for the Rügen Biosphere reserve was to re-establish traditional coppice in some places and involve tourists to manage them.

Discussion and Conclusion

It could be shown that outdoor recreation, adaptation to climate change and conservation of biodiversity can create synergies for a sustainable regional development, when key stakeholders collaborate in spatial scenario planning to develop solutions for future challenges. Renewable energies can be integrated mainly by the use of woody biomass and residues from landscape management in the selected study areas.

Particularly, adaptation to climate change is perceived as an issue of the distant future, and creates little motivation for stakeholders to act at present. Participatory approaches and stakeholder involvement only generate interest and willingness to take part when more day-to-day issues such as visitor management or protection of biodiversity are considered to be issues for which the stakeholders can find appropriate solutions. Combining climate change adaptation with action for more urgent nature protection and outdoor recreation issues seems to be useful. At least, in

Germany, nature conservation is considered important among all members of society, and there is a great willingness to act decisively (BfN 2011).

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