Perception of crowding in a high-use German national park

Johannes Schamel, Julius-Maximilians Universität of Würzburg, Germany, johannes.schamel@uni-wuerzburg.de

Introduction

In the short history of German National Parks, visitor-related research has focused primarily on the ecological impacts of high numbers of visitor. Issues of social carrying capacities have been understudied, even though visitor numbers suggest that social conflicts seem very likely. For Germany there are only a few studies dealing with social carrying capacity in recreational areas in general and crowding in particular (Volz and Mann, 2007; Kalisch and Klaphake, 2007; Kalisch, 2012).

Recreational research in North America found crowding to be a complex phenomenon, with only a weak relationship between visitor density and perceived crowding. The normative approach to crowding assumes that other factors, such as motivations for the visit or the experience of visitors, contribute to the creation of norms, which serve as individual standards (Manning, 2011). Visitors compare their standards to actual conditions, resulting in an evaluation of the situation as crowded or not.

Study area

Saxon Switzerland National Park (SSNP) is located 50 km southeast of the urban area of Dresden. A systematic year-round visitor counting in 2009 revealed that the Park has 1.7 million visitors per year with two seasonal peaks in spring and autumn. This means that the SSNP has the highest visitor density of all German terrestrial national parks with 183 visitors per hectare. More than half of the visitors were counted at the "Bastei", a nationally known destination (Job et al. 2010).

Methodological approach

Two case studies were conducted in autumn 2009 (n=280) and spring 2011 (n=312), covering workdays and weekends. In personal on-site interviews visitors were asked about the characteristics of their visit (e.g. experience, motives and activity) and the characteristics of those encountered (number, behavior and expectations for visitor numbers). Questions concerning visitor numbers were visually supported by a series of digitally calibrated pictures. Perceived crowding was measured with the help of a nine-point Likert-scale. To determine the influencing factors on crowding, a logistic regression modeling was employed with binary recoded perceived crowding as dependent variable. The question which examines the displacement effects of crowding refer to future displacement and already existing displacement, so that first-time visitors are included in the study.

Results

The overall mean for crowding perception suggests that only slight forms of crowding exist in the national park. However, at the Bastei nearly three of four visitors rated the situation as at least moderately crowded and about one fifth of visitors feel "very" or "extremely" crowded. The high correlation between perceived encounters and perceived crowding (Spearmen-Rho = 0.67, $p<0.01$) suggests that visitors to SSNP seem to be relatively intolerant to high visitor numbers. Topography may play a decisive role here. The Saxon Switzerland is a low mountain range area mostly covered with wood, resulting in a small field of vision. Consequently when visitors encounter other people, they probably see them from a short distance and will often have to react on them as hiking paths are narrow. Results of the logistic regression modeling show that apart from visitor numbers, motivations for the visit and the expectations of use levels are also important factors which contribute to the perception of crowding. Visitors whose main motivation for the visit is experiencing nature are more likely to report crowding than visitors with recreational or social interaction oriented motives. Underestimated use levels increase the probability to perceive crowding. These results underline the key role that comprehensive visitor information can play in taking counter-measures against crowding.

About half of the visitors are already reacting or plan to react to crowding (48.7%). Spatial and temporal displacement were equally chosen strategies. There seems to be a high attachment to the national park area as only a minority of respondents plan to visit other recreational areas instead. Experienced visitors with more than five visits in the national park clearly prefer an intra-area displacement to a temporal displacement. Visitor satisfaction is affected by crowding (Spearman-Rho -0.24, $p<0.01$) although the correlation is weak.

Short term measures, such as charging higher parking fees during peak season address the unequal temporal distribution of the visitor numbers. In the long run, the main task for management of recreational areas should be monitoring the visitor numbers and their recreational experience. It is important to understand the relationship between visitor density and perceived encounters because most measures against crowding normally target visitor numbers. New web-based tools can help to gather data about visitor experience cost-efficiently. Brown and Weber (2011) used a Public Participation GIS to gather spatial data about the different kinds of recreational experiences in the park system of Victoria, Australia. This promising approach should be further developed and integrated it into a mobile web application, enabling an automatic positioning of the rated recreational experience. The generated data have to be communicated effectively to the visitors. Again, the mobile web has great potential here. Informed visitors have the possibility to plan the visit according to their preferences and they will underestimate the use levels less frequently.

Brown, G., and Weber, D., 2011. Public Participation GIS: A new method for national park planning. Landscape and Urban Planning, 102 (1), p.1–15.

Job, H., Woltering, M. and Merlin, C., 2010. Regionalwirtschaftliche Effekte des Tourismus im Nationalpark Sächsische Schweiz. In: Staatsbetrieb Sachsenforst, ed. 2010. Der Nationalpark Sächsische Schweiz als regionaler Wirtschaftsfaktor. Bad Schandau: Schriftenreihe des Nationalparks Sächsische Schweiz (Volume 6), p. 4–33.

Kalisch, 2012. Relevance of crowding effects in a coastal National Park in Germany: results from a case study on Hamburger Hallig. Journal of Coastal Conservation. Available at: <http://www.springerlink.com/content/518564r83432517k/?MUD=MP> [Accessed 22 June 2012].

Kalisch, D. and Klaphake, A., 2007. Visitors' satisfaction and perception of crowding in a German National Park: a case study on the island of Hallig Hooge. Forest Snow and Landscape Research, 81 (1/2), p. 109–122.

Manning, R.E., 2011. Studies in Outdoor Recreation. Search and Research for Satisfaction. Corvallis: Oregon State University Press.

Volz, K.R., and Mann, C., 2006. Konfliktanalysen als Grundlage für die Entwicklung von umweltgerechten Managementstrategien in Erholungsgebieten. Eine Untersuchung zur sozialen Tragfähigkeit am Beispiel des Naturparks Schwarzwald Mitte/ Nord. Freiburg im Breisgau: Albert-Ludwigs-Universität Freiburg.