

# Experiencing Nature – The Recognition of the Symbolic Landscape within Research and Management of Visitor Flows

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*Keywords: Social construction, nature experiences, symbolic landscape, environmental values, human-environment interaction.*

## Introduction

Large visitor numbers in nature areas threaten the sustainability and create problems to the management of these areas. A comprehensive understanding of visitor use, including visitors' temporal and spatial distribution is fundamental for effective park management. Recent research presents computer-based modelling as an effective tool to manage visitor behaviour in natural environments (Cole et al. 2005, Gimblett et al. 2001, Lawson et al. 2003). The Dutch MASOOR (Multi Agent Simulation Of Outdoor Recreation) and the American/Australian RB-Sim (Recreational Behaviour SIMulator) are examples of models that are capable of modelling individual recreation needs. They offer multi-agent simulations with autonomous agents that can perform activities defined in behavioural rules. However, the theoretical foundations of recreation experiences and spatial behaviour is weak (Elands & Marwijk 2005) and the simulation of human-environment interactions is in its infancy (Gimblett 2005). The behavioural rules (and their validity) are often not explicitly indicated in simulation studies. Often, when agents do not behave as in observed reality, behavioural rules are adjusted to obtain the expected behaviour (ibid.). Why is it so difficult to design the 'right' behavioural rules? Recent research has even shown that it is not possible to define groups of visitors based on their spatial behaviour alone (O'Connor et al. 2005, Taczañowska et al. 2006). Our assumption is that up

to now, researchers have overlooked the fact that there is a difference between the physical (objectively measurable) environment and the symbolic (mental) environment.

In general, simulation models represent the physical environment (a system of trails, roads and/or facilities) and model the behaviour of visitors as they interact with the environment and with each other. In this paper we want to clarify that the physical environment is endowed with meaning, and that an understanding of the different meanings and values of the environment – the symbolic environment – is crucial for an understanding of visitor spatial behaviour and consequently for defining visitor groups.

Our specific research question is 'How can the symbolic environment be integrated in research and management of visitor flows?'<sup>1</sup> As a basic assumption we state that a visitor's time-spatial behaviour in nature areas is based on the meanings and values she or he ascribes to places.

## Multiple realities: environmental values

An environment may have different meanings to different persons. Reality cannot be objectively known and described; people ascribe certain experiences to an environment. Cultural codes and individual characteristics such as expertise

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<sup>1</sup> This paper is part of an ongoing PhD project that aims to theoretically and empirically find the values of landscape characteristics and the relation with visitor patterns of use, in order to improve a management tool (simulation model) for effective ecosystem management (2005-2009).

and education have a powerful role in this process (Nassauer 1995, Pennartz 1992). The physical environment can be relevant to its users in a variety of different ways. The types of relevance can be linked to four different values attributable to the surroundings. These values are useful to consider when describing the symbolic landscape as they are transactional: they reflect the interplay of human and environmental forces. Based on the values, an environment can acquire a number of totally different significances or meanings (Lengkeek et al. 1997).

The four values can be applied when developing visitor typologies and comprehend behaviour. Visitor typologies can help managers of leisure destinations with effective marketing, to adjust the physical environment and infrastructure to visitor behaviour, and to minimize negative social (e.g. crowding) and environmental impacts of visitor use. The four environmental values serve as tools in describing recreational behaviour characteristics. A semantic differential, a technique for measuring meaning, can be used for measuring the four values. This implies that visitors help to differentiate the meaning of the symbolic landscape by responding to several pairs of bipolar adjectives. The data from the semantic differentials can be analyzed with factor analysis. The factors help clarifying how sets of pairs define the multidimensional semantic space of the symbolic landscape. Furthermore, relationships can be found between different meanings of the symbolic landscape and time-spatial behaviour<sup>2</sup>.

### Visitor management

An implication of the introduction of the symbolic environment in recreation research and management is that visitor groups can be labelled according to their prevailing value. It is interesting to know which values – constituting the symbolic landscape – are related to spatial behaviour patterns. The symbolic landscape is not an independent ‘invention’ of the visitor; it is based on the physical landscape that is managed by forest services and nature organizations. This suggests that managers can influence visitors’ multiple symbol-

ic landscapes and consequent behaviours. However, planning for freedom is a rather paradoxical exercise.

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<sup>2</sup> Time-spatial behaviour of visitors in nature areas can be recorded by GPS.