Tools for recreation planning and monitoring - developing a spatial explicit model of people's nearby outdoor recreation use

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The demand for nearby outdoor recreation is increasing in modern societies. To provide to the public a high recovery-function in these limited areas, responsible managers like foresters or landscape planners, strive to offer optimal recreation conditions. However, this is not easily done, as the knowledge about people's decision relevant factors for selecting a recreational area is fairly limited. Accordingly, decision support tools which help identify potential strengths (e.g. fallow recreation ground) and limitations of an area management (e.g. crowding, inappropriate recreation infrastructure) are lacking. To support future nearby outdoor recreation management in peri-urban regions, we are developing a geographical prognostic model of nearby outdoor recreation use in several research steps. Our final model should be able to (a) identify the intensity of use-frequency of different parts of a nearby outdoor recreation area and (b) indicate the types of recreationists (e.g. activity, recreation goals) in the different parts of a nearby outdoor recreation area.

In the first research step, the aim was to identify the main factors for people for selecting peri-urban nearby recreation areas and to geographically model the use-frequency of an area with a geographical information system (GIS). We focused on the case study of the Swiss city of Frauenfeld (22,000 inhabitants) and its nearby recreation area (within 15 km from city centre). This case study included three research phases: In the inductive Phase 1, the main factors for selecting nearby recreation areas were identified through problem-focused interviews (N = 18) and literature analysis. In the deductive Phase 2, we collected data in a representative survey including a local map to indicate preferred recreation zones (N = 656) and tested with multiple regression analysis the significance of the factors identified in Phase 1. In the modelling Phase 3, we identified with poission regression analysis the geographical features that best predicted people's recreation use intensities in the local map, and we developed a basic GIS-based prognostic model of peri-urban nearby outdoor recreation use.

The results of the first phase show that the selection of nearby recreation areas is mainly shaped by the distance to the place of residence, but also by other environmental and personal factors such as the length of river banks, the availability of paths, the presence of hill-tops, and area-knowledge as well as the kind of personal workloads (Degenhardt et al. 2010). To improve the basic model, a second research step is being carried out. The aim of the second research step is threefold: first, to check for the external validity of the basic model; second, to improve its prognostic validity; and third, to geographically extrapolate the basic model. The case study in the second phase is the Swiss city of St. Gallen (71,000 inhabitants) and its nearby outdoor recreation area (within 5 km from city centre). In order to reach the three aims, we are carrying out a representative survey in St. Gallen similar to the one in Frauenfeld. Additionally, we will carry out a visitor survey in selected parts of the nearby outdoor recreation area of St. Gallen. The extrapolated recreation model will be presented and its significance for recreation planning and recreation monitoring will be discussed.

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