

# Social Carrying Capacity of a Viennese Urban Park

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The fact that visitor volume and unwanted visitor behaviour can diminish a recreational experience and even lead to use conflicts has been documented in many recreation studies over the past two decades. We are expanding that work in two ways. So far, most crowding research focused on recreation in wilderness or natural areas with rather low user densities as opposed to more developed or urban recreation areas. The latter have received much less attention, partly because these areas are so different, partly because the research methods developed for low-use areas may not be appropriate in high use areas. One can only suspect that the phenomenon of social carrying capacity and substitution behaviour is equally relevant in urban and near-urban settings. Therefore, we propose a multivariate and visual research approach to the investigation of social carrying capacity.

The goal of this research is to investigate the social carrying capacity in an urban park of the City of Vienna, the 'Wienerberg'. We used a stated choice approach, the discrete choice experiment, combined with a referendum style conjoint model. Based on the hypothesis that the perception of crowding is influenced by several factors such as use density, user types, and visitor behaviour, digitally calibrated images were generated to display all these factors in a systematic and rigorous manner. Based on a statistical design plan, hypothetical scenarios (profiles) were created containing the following attributes: number of visitors, user groups, group size, the placement of visitors within the images, dog numbers and dogs on or not on a leash, and the direction of movement. All attributes consisted of four levels, except the number of visitors, which was shown on eight levels. Visitors evaluated the alternatives by selecting the one most and the one least preferred scenario from a set of four. Thereafter, the social carrying capacity was measured explicitly by asking each respondent whether the chosen scenario was acceptable or not (referendum style conjoint model). The multinomial logit regression analysis resulted in part worth utilities for each attribute level.

The two stated choice methods allowed the identification of a maximum and a minimum social carrying capacity, for the entire sample as well as for various user groups. Overall, visitor numbers, the placement of visitors within the image and dogs being on or off a leash influenced the visitors' decisions the most. The referendum style conjoint approach actually produces visitor norms that are derived from a truly multivariate investigative method. The multinomial basis of the analysis permits the prediction of the proportion of visitors whose standard would be violated. As such, this method represents a significant advancement to the field of recreation carrying capacity research. An analysis of different user groups showed enormous differences in the crowding norms. The social carrying capacity of the investigated recreation area generally does not appear to be surpassed, except on select Sunday afternoons or workday evenings during the summer. Predictions could be made on the future situation, when new residents from housing projects currently under construction in the vicinity are expected to add to the current visitor load.