

Predicting local residents' use of nearby outdoor recreation areas through quality perceptions and recreational expectations

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Abstract

Outdoor recreation, and in particular nearby recreation, is of growing importance in urban areas. However, previous research into nearby recreation areas has been subject to several limitations, including being restricted to target area surveys and inadequate explanation of the use of these areas. The present study predicts the degree of use of a nearby outdoor recreation area on the fringe of Zurich by relating use to both the quality of the area, as perceived by the local residents' ($n = 325$), and to their general recreational expectations. The perceived quality of the recreation area predicted mainly weekend use. Frequent visitors reported higher expectations than non-visitors regarding their recreational environment in general, and in particular regarding qualities of stimulation avoidance. It is concluded that maintenance of landscape quality and natural features, as well as providing low-stimulus environments represents the first priority for the management of nearby outdoor recreational areas.

Keywords: outdoor recreation, environmental quality, leisure behaviour, restoration, visitor flows

1 Introduction

Outdoor recreation has become a major aspect of people's quality of life in the last decades (DTLR 2002; MÜLLER 1999). Outdoor recreation areas fulfill important functions for their visitors (CHIESURA 2004; DE VRIES 2002; GIVONI 1991; HARTIG 2004; Health Council of the Netherlands 2004; LAUMANN *et al.* 2001) and are particularly important by allowing people to regulate their physical and psychological resources (HOBFOLL 2001; cf. also FUHRER and KAISER 1994). The number of people living in cities is growing (SCHULER *et al.* 2004; United Nations 2000) which causes an increasing demand for these functions, and brings associated pressure in particular on nearby outdoor recreation areas (i.e., those areas accessible by short walks but still large enough to create visual, acoustic and mental distance to the residential area) due to higher population density, expansion of the settlement area, and multiple forms of use (ARE 2005). Consequently, a need-oriented management of nearby recreation areas is of high importance (cf. DRIVER 1996; GOBSTER and WESTPHAL 2004; WARD THOMPSON 2002).

In order to manage this resource according to the needs of the broad population, knowledge is needed about the users and – even more importantly – about potential users of these areas. In Switzerland and other German-speaking countries, only few studies on nearby recreation behaviour have been conducted (e.g., BUWAL 1999; BUWAL 2000) with investigations being mostly conducted in the target areas and focusing on weekend use. The available evidence is mostly descriptive and activity-oriented, and only limited empirically

confirmed knowledge is available on the perceptions and general expectations of the residents living near the recreation areas (i.e., source area). Furthermore, the use, or non-use, of these areas is insufficiently explained by the general recreational expectations underlying the purely activity-related goals commonly assessed from the visitors (MANNING 1999).

The approach of this study is to focus on the perceptions and expectations of all local residents towards their nearby recreation areas, rather than only the visitors to the areas, and to explain weekday and weekend use in the light of these perceptions and expectations.

1.1 Explaining outdoor recreation through residents' perceptions and expectations with regard to the recreation area

The use of natural recreation areas is influenced by many factors. It can be concluded from studies on leisure constraints and physical activity (cf. BAUMANN *et al.* 2002; HEBERLEIN and FREDMAN 2002; JACKSON 2005; JACKSON and HENDERSON 1995; SHORES *et al.* 2007) that characteristics of the area itself, characteristics of the visitor, social influences, and living conditions may influence the use of nearby outdoor recreation areas. The infrastructure, accessibility, safety, crowding, noise and pollution, visual attractiveness, topography and size of the area, and availability of forest edges, waters and viewpoints are often found to be important among the environmental qualities relevant for perceived attractiveness and use of a recreation area (e.g., DE VRIES 2002; ELSASSER *et al.* 1977; ELSASSER 1996; GOOSEN and LANGERS 2000; MANFREDO *et al.* 1996; NOHL 2001). Many studies of outdoor recreation behaviour have been concerned with evaluations of specific areas with regard to these kinds of qualities and have focused on activities and characterization of user segments in terms of socio-demographics. However, the need for action in planning and in improving these areas may be interpreted incorrectly if the characteristics of the settings or user activities are not linked with the users' individual perceptions and expectations. This is why a transactional view is proposed in recreation research, as well as a behavioural approach focusing on the goals behind activities (MANNING 1999). Accordingly, we suggest to link nearby recreational use with the users' general expectations regarding nearby outdoor recreation. In contrast to perceived qualities, expectations are more abstract and are not necessarily experience-based (cf. BEARD and RAGHEB 1983).

The main benefits visitors usually expect of outdoor recreation areas are aspects of health and well-being (i.e., recovery from stress, regeneration), better environmental qualities, "being away", social benefits such as company, activity-related benefits, and aesthetic or experiential benefits that are particularly related to experience of nature (BEARD and RAGHEB 1983; BELL *et al.* 1996; JENKINS and PIGRAM 2003; MANFREDO *et al.* 1996; NOHL 2001; STAATS and HARTIG 2004). Accordingly, expectations of relaxation, privacy, quietness, fresh air, physical activity, and experience of nature are most commonly expressed in visitor surveys, (e.g., AMMER and PRÖBSTL 1991; BUWAL 1999; BUWAL 2000; ZEIDENITZ 2005; cf. STAATS and HARTIG 2004). Furthermore, perceived security and company seem to be similarly important (e.g. GOOSEN and LANGERS 2000; MANNING 1999; STAATS and HARTIG 2004). Overall, avoidance of stimulation (cf. BEARD and RAGHEB 1983) seems to be more important than stimulation seeking.

However, in all studies applying the methodological approach of the visitor survey, one important group of the population is neglected: the non-visitors. In the light of the importance that natural outdoor recreation areas have for health and wellbeing, unlimited access for all segments of the population is the main goal in the planning of these areas (WARD THOMPSON 2002). Therefore, it is crucial to also have an idea about the expectations

of non-users of the areas. For example, little is known about the relevance of nearby recreation areas to the quality of life perceived by elderly people who may avoid recreation areas altogether because of access problems, security concerns, or the feeling that they must belong to a group to go there (CROMBIE *et al.* 2004; SUGIYAMA and WARD THOMPSON 2005). Furthermore, runners may avoid these areas because of frequent encounters with dogs, whereas on the other hand, dog walkers feel restricted because of the same possible conflict situation (ARNBERGER and HAIDER 2005). Families with children may avoid recreation areas because of a lack of attractive facilities for play. Taking the expectations of non-users or non-frequent users of nearby recreation areas into account thus represents the main objective of this paper.

1.2 Research questions

In the present research, we try to explain the frequency of use of the recreation area based on the perceptions and expectations of the inhabitants of residential areas near to the recreation area. This leads us to the following two research hypotheses:

- 1 Frequent users have different quality perceptions of the nearby recreation area than less frequent or non-users.
- 2 Frequent users have different general recreational expectations of the nearby recreation area than less frequent or non-users.

Since recreational motives may differ on weekdays and on weekends, we tested these assumptions with regard to both types of leisure time.

2 Materials and methods

2.1 Area of investigation

The study was conducted in a district consisting of the five neighborhoods closest to a recreation area on the northern fringe of Zürich, Switzerland. The residential area that was surveyed is populated by 37000 inhabitants. About half of the recreation area consisted of hills covered by a highly maintained urban forest, which formerly constituted a natural city border. Two of the neighborhoods were located within these hills, and the remaining three neighborhoods were suburban areas located between the forested hills and a flatter section of the recreation area consisting of woods and open land, and offering access to streams and ponds. Healthy residents of all of these neighborhoods could reach one of the recreation areas on foot in 10 minutes or less.

2.2 Sample and procedures

A standardized questionnaire was mailed to a random sample of 1000 local residents, stratified according to the population size of the five neighborhoods. The response rate was 32 % ($n = 325$), and the returned sample was balanced in terms of most socio-demographic criteria (55 % female; 47 years age average, ranging from 16 to 84 years; 81 % mother tongue German).

2.3 Measurement instruments

The questionnaire consisted of a section focusing on the use and perceived quality of the nearby recreation area, and a section on the expectations and use regarding the residential environment in general.

Use frequency and use intensity of nearby outdoor recreation area and residential area.

Firstly, respondents were asked how frequently they used each of five sectors of the recreation area. Answering options included “several times a week”, “at least once a week”, “up to once a month” and “rarely or never”. An overall score for the whole area was calculated based on the highest answer. Secondly, two items were used for assessing use intensity, i.e., the time spent in recreation areas a) on weekends and b) on weekdays. The answering options ranged from a) “virtually no time” to “virtually all the time” on a five-point scale and b) “virtually never” to “on five days a week and more” on a six-point scale. The answers provided by the respondents are subjective, especially for weekday use, and depend on the available leisure time of each person. However, for answering the research questions, the absolute values given by respondents are not important. Rather, analyses presented in the results section are based on the associations with other continuous variables, or on the comparison of the time spent in the recreation area with the leisure time spent in the residential area. Therefore, the same two questions were asked with regard to the residential area (i.e., time spent in the neighborhood).

Perceived quality of the recreation area.

Perceived quality was assessed in two forms: Firstly, respondents were given the question “Overall, how satisfied are you with the nearby recreation area?” and asked to indicate their satisfaction on a rating scale ranging from 0 (“not satisfied at all”) to 10 (“very satisfied”). Secondly, 18 single aspects of landscape quality (i.e., attractiveness and annoyances) in the recreation area were assessed using agreement to statements such as “In the recreation area, I like ...” and “In the recreation area, I am annoyed by ...” (cf. Table 1) with five answering options ranging from “fully applies” to “does not apply at all”.

General expectations regarding recreational qualities of the residential environment.

The importance of twenty general aspects (cf. Fig. 1) of landscape-related quality of the local living environment was assessed using a rating ranging from 0 (“not important at all”) to 10 (“essential”). These expectations can theoretically be ordered in two dimensions: expectations regarding stimulation avoidance (e.g., quietness, nature, security) and expectations regarding stimulation seeking (i.e., opportunities for social contacts, sport and hobby; cf. BEARD and RAGHEB 1983). This does not imply that people strive for either complete reduction or maximization of stimuli, but rather that they have their preference for an optimal level in both dimensions (cf. ISO-AHOLA 1980; LAWTON 1993).

2.4 Statistical analysis

The influence of general expectations and quality ratings on recreational use were tested by comparing the mean differences between frequent users and less frequent users with regard to quality ratings and expectations, and by using linear regressions of time spent in the area on these variables.

3 Results

The results are presented in two sections. First, the quality ratings are related to recreational use. Second, recreational use is explained by the residents' expectations.

3.1 Predicting nearby recreational use by perceived quality of recreation area

The recreation area was highly frequented by the respondents with 30 % of the residents using the recreation areas several times a week, 27 % at least once a week, and 23 % up to once a month. Only 20 % of the respondents use the areas rarely or never. Since the five sections of the recreation area are very alike with regard to the recreational opportunities, it is not surprising that they were found to be frequented predominantly by inhabitants from the adjacent residential areas, and less frequently by residents from other areas.

The overall satisfaction with the nearby recreation area was generally very high, with a mean rating of 8.0 ($SD = 1.9$) on the scale ranging from 0 to 10. The main single aspects of the recreation area that were perceived as rather attractive were woods, waters, open land, recreational opportunities, and landscape attractiveness in general (see first two columns of Table 1). Opportunities for social contact and socialization were rated less positively. Traffic noise was rated highest among the annoying aspects, followed by littering and the availability of sanitary and recreation facilities. Despite the high use-density of these areas, crowding did not appear to be a serious negative influence on attractiveness. Thus, aspects of social interaction are not rated very positively, but are also of minor relevance for the users.

Table 1. Attractiveness and annoyance ratings (mean and standard deviation) of quality aspects of the nearby recreation area for overall sample, frequent users, and non-frequent users. Answering options range from zero (low attractiveness / low annoyance) to 4 (high attractive / high annoyance). * $p < .05$; ** $p < .01$; *** $p < .001$ (significant mean differences between frequent users and non-frequent users based on t-Tests)

Quality aspect	overall ($n = 322$) $M (SD)$	frequent users ($n = 261$) $M (SD)$	non-frequent users ($n = 61$) $M (SD)$
Attractiveness of ...			
woods and forests	3.3 (0.8)	3.4 (0.7)	2.9 (0.8)***
open land	3.1 (0.9)	3.2 (0.9)	2.7 (1.0)**
waters	3.1 (1.0)	4.1 (1.1)	2.8 (1.0)
recreation opportunities	2.9 (1.0)	3.1 (0.9)	2.5 (1.1)**
attractive landscape	2.9 (0.9)	3.0 (0.9)	2.7 (1.1)*
viewpoints	2.3 (1.2)	2.4 (1.1)	1.9 (1.3)*
opportunities for social contact	1.7 (1.1)	1.7 (1.1)	1.4 (1.2)
Annoyance by ...			
traffic noise	2.0 (1.4)	2.0 (1.4)	1.9 (1.3)
littering	1.9 (1.4)	2.0 (1.4)	1.8 (1.4)
few sanitary facilities	1.9 (1.3)	1.9 (1.3)	1.8 (1.3)
few recreational facilities	1.6 (1.4)	1.6 (1.4)	1.7 (1.4)
dogs	1.5 (1.4)	1.5 (1.4)	1.4 (1.2)
crowding	1.3 (1.2)	1.3 (1.2)	1.3 (1.3)
conflicts between visitors	1.0 (1.1)	1.0 (1.1)	0.9 (1.0)
not enough nature	0.9 (1.1)	0.9 (1.1)	1.0 (1.2)
unattractive scenery	0.8 (1.0)	0.8 (1.0)	0.9 (1.1)
bad connections in the area	0.8 (1.0)	0.7 (0.9)	0.9 (1.2)
bad access to the area	0.7 (1.0)	0.7 (1.0)	0.8 (1.0)

Research hypothesis 1 related to the question of whether use is dependent on the perceived quality of the area. For this, frequent users (at least once a month, i.e., 80 % of the sample) were compared with less frequent or non-users (i.e., the remaining 20 % of the sample) with regard to their overall quality perceptions. Results suggest that frequent users ($M = 8.15$, $SD = 1.93$) and non-frequent users ($M = 7.5$, $SD = 1.98$) differ marginally with regard to their overall quality perceptions (t-Test assuming unequal variances: $t = -1.98$, $p = .056$). With regard to single aspects, however, clear differences are evident (see last two columns in Table 1). Frequent users rated most attractive quality aspects more positively than non-frequent users. On the other hand, both groups perceived annoying quality aspects as being equally negative.

Secondly, regression analyses were performed using perceived quality of the recreation area as a predictor for the use intensity, i.e., the time spent in the area. Here, perceived overall quality of the recreation area was positively linked with use, however perceived quality seems to be more relevant for weekend use ($\beta = .32$; $p < .001$, $R^2 = 11\%$) than for use on weekdays ($\beta = .25$; $p < .001$, $R^2 = 6\%$).

In short, the perceived quality of the recreation area seems to allow prediction of its use, in particular on weekends, and based on the residents' perception of attractive features rather than repulsive negative features.

3.2 Predicting nearby recreational use by residents' general recreational expectations

As we have argued, quality ratings should not be interpreted alone, but in the context of the residents' general expectations. The importance ratings of 20 landscape-related aspects of the local living environment (Fig. 1) show that aspects of stimulation avoidance (e.g., needs for quietness, nature, security, places to go for a walk) ranked higher, while aspects of stimulation seeking (e.g., through sportive activities or social contacts) were generally rated as being less important for the residents' recreational environment.

Research hypothesis 2 related to the question of whether recreational use is dependent on the residents' general recreational expectations. Therefore we again first compared frequent users with non-frequent users regarding their expectations. For this, we used two overall scores for the items measuring aspects of stimulation avoidance (first ten items in Fig. 1, $M = 8.3$, $SD = 1.3$, Cronbach's alpha = .88) and stimulation seeking (last ten items in Fig. 1, $M = 6.4$, $SD = 1.8$, Cronbach's alpha = .87). Frequent users scored only slightly higher than non-frequent users in expectations regarding stimulation avoidance ($M_f = 8.4$; $SD_f = 1.1$ $M_{nf} = 7.9$, $SD_{nf} = 1.8$; $t = -2.07$; $p = .04$) and insignificantly higher in stimulation seeking ($M_f = 6.4$, $SD_f = 1.7$; $M_{nf} = 5.9$, $SD_{nf} = 2.2$; $t = -1.25$; $p = .22$). Thus, similar to the quality perceptions, the expectations were only marginally related to overall use frequency.

However, we assumed expectations to predict use intensity. Regression analyses were performed relating the two dimensions of expectations to time spent in the recreation area. Time spent in the recreation area on weekends was only related to stimulation avoidance ($\beta_{SA} = .33$, $p < .001$; $\beta_{SS} = -.04$, $p = .52$; $R^2 = 9\%$), whereas during weekdays, both dimensions of expectations were related to time spent in the recreation area ($\beta_{SA} = .29$, $p < .001$; $\beta_{SS} = -.16$, $p < .05$; $R^2 = 7\%$), with stimulation seeking notably having a negative effect on time spent there.

In order to illustrate these results and put them in the context of recreational use in general, the sample was split into two demand groups at the median of the overall score for expectations regarding stimulation seeking and stimulation avoidance (median = 6.5 and 8.5). This procedure placed each respondent in a group of either high or low stimulation

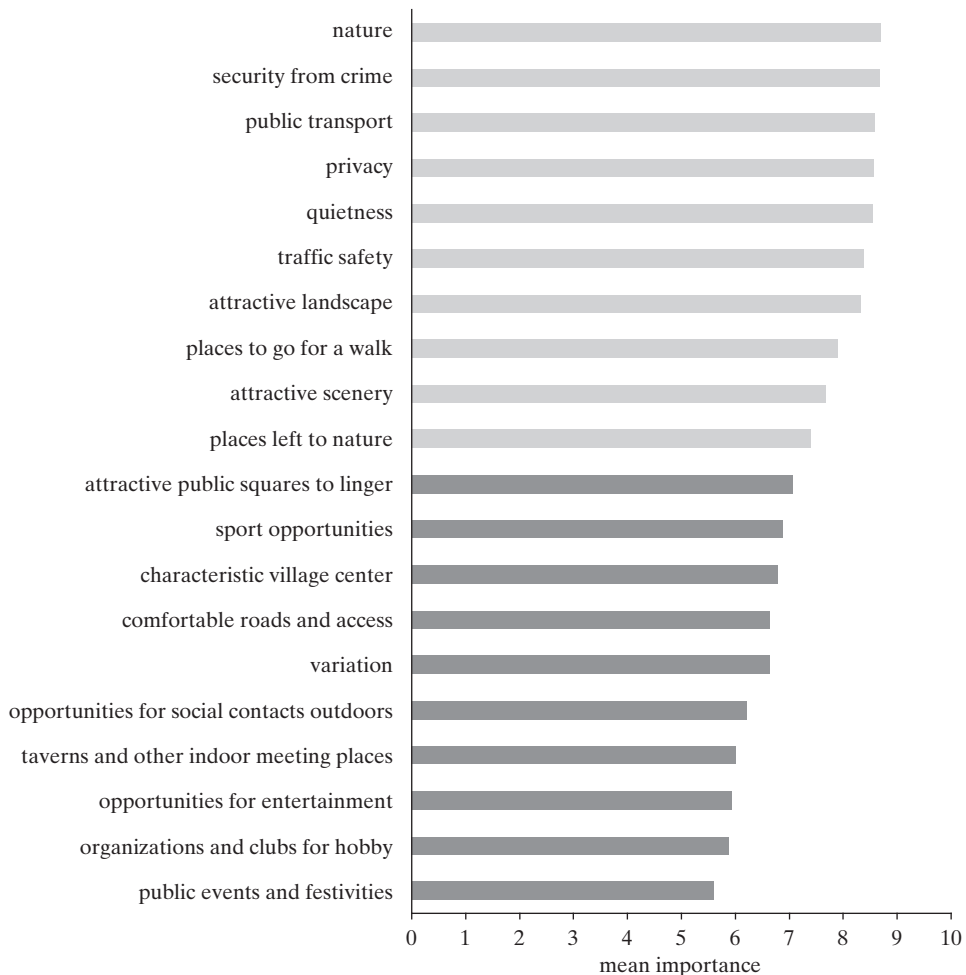


Fig. 1. Residents' general expectations regarding recreational qualities of the living environment. Items are highlighted to indicate their contribution to the two dimensions of expectations (light for stimulation avoidance, dark for stimulation seeking).

seekers and also in a group of high or low stimulation avoiders. Subsequently, leisure time spent in the recreation area as well as in the residential area (i.e., the neighborhood) during weekends and weekdays was compared for the demand groups (Table 2). Two general trends are evident. First, persons with high expectations regarding stimulation avoidance generally spent more time in both areas than persons with low values in stimulation avoidance. The stimulation seeking dimension on the other hand had no such clear effect on time spent in any area. Second, the recreation area proved to be generally preferred over the residential area for activities during leisure time. All groups showed this preference with one exception in that on weekdays, high stimulation seekers spent slightly more time in their immediate neighborhood than in the recreation area (Table 2). This preference offers an explanation for the negative overall effect of stimulation seeking on recreational use on weekdays.

Table 2. Comparison of groups of high and low stimulation seekers and high and low stimulation avoiders with regard to use intensity (i.e., time spent) in residential and recreation area. Answering options for weekend use are ranging from zero (“virtually no time”) to 4 (“virtually all the time”), for weekday use ranging from zero (“virtually never”) to 5 (“on five days a week and more”). * $p < .05$; ** $p < .01$; *** $p < .001$ (significant mean differences between high and low expectation groups based on t-Tests)

Average leisure time spent ...		stimulation seeking expectations		stimulation avoidance expectations	
		low ($n = 164$)	high ($n = 158$)	low ($n = 163$)	high ($n = 159$)
weekdays	in neighborhood	1.38	1.42	1.20	1.60*
	in recreation area	1.54	1.25	1.10	1.74***
weekends	in neighborhood	1.26	1.39*	1.11	1.54***
	in recreation area	1.50	1.51	1.24	1.82***

In short, the residents’ general expectations with regard to their recreational environment allow prediction of the use of nearby recreational areas in two ways. First, stimulation avoidance was positively related to use in general, and second, high expectations for stimulation prevented residents from using the recreation area on weekdays.

4 Discussion

The importance of nearby recreation for residential quality was confirmed by this investigation. Both the perceived quality of specific characteristics of the nearby outdoor recreation area, and the recreational expectations of residents towards the living environment in general, converge to the finding that aspects of stimulation avoidance such as nature, quietness, and safety are qualities that are most sought by the residents (cf. BEARD and RAGHEB 1986; KUO *et al.* 1998; VOGT and MARANS 2004). On the other hand, social aspects of recreation (i.e., opportunities for interaction and socialization) are of minor importance for the users of the outdoor areas. This supports existing findings, that social stimuli have no positive effect on recovery, and that being alone increases the probability of recovery, if the person’s safety is provided for (STAATS and HARTIG 2004; STAATS *et al.* 2003). Also, social conflicts and crowding are perceived as rather marginal problems in the outdoor recreation area. This finding is in line with existing studies that found crowding to be a problem only for specific groups (e.g., ARNBERGER and HAIDER 2005) or in more remote recreation areas (SAARINEN 1998).

Overall, and contrary to our assumptions, residents’ expectations and perceived recreational quality did not seem to be fundamentally different between frequent visitors and non-frequent visitors of the recreation areas. However, two interesting effects were found with regard to time spent in the recreational area. First, perceived quality of the area seemed to be important mainly for weekend users, and less important for weekday users. This can be explained by the assumption that habitual behaviour for which quick access is most important (e.g., running or walking the dog) predominates during weekdays whereas, at weekends, conscious quality-related decisions are made about the choice of recreation areas.

Second, we found that stimulation seeking was negatively associated with the amount of time spent in the recreation area during weekdays. In particular, the group of residents

holding high expectations regarding stimulation in their leisure time preferred to stay in the residential area than visiting the nearby recreation area. It can be concluded that for certain activities, the immediate residential environment may sometimes be even more attractive than the recreation area itself. For example, if the main recreational purpose is social interaction, then street corners or squares may be more suitable for exchange (cf. LEYDEN 2003) while nearby outdoor recreation areas may even be more prone to use conflicts than other areas. However, missing opportunities for stimulation in the recreation area are not necessarily perceived as shortcomings by visitors seeking stimulation, because during weekends, they spend similar amounts of time in the recreation area as low stimulation seekers. Also, since frequent visitors generally have higher expectations regarding their local environment than non-frequent users, it may be concluded that less frequent users are generally oriented towards other parts of the city or even outside the city in their leisure time, and prefer other areas more complying with their needs.

With regard to future research into nearby recreation areas, we suggest to take possible differences in expectations and perceptions between weekday and weekend visitors into account and, if possible, to consider both types of use. Also, it may be promising to pursue the question of how quality perceptions and recreational expectations are interrelated or interact with regard to recreational use. However, this would ideally require an experimental design, because mutual causal feedback of quality perceptions and expectations can be expected: Users not only relate their quality perceptions to their expectations, but may also adjust their expectations based on the reality they find. Furthermore, since time spent in the area was related to perceptions and expectations, the aim of every investigation should be to avoid a sample bias towards frequent users. Similarly, the main limits of our study are related to its response rate. Our findings are based on the answers of those 32 percent of residents who are probably interested most in questions of residential or recreational quality. Different surveying techniques could be used to gather information about the perceptions and expectations of the other two thirds of the population.

Based on the results of this study, it can be concluded that interventions to improve nearby recreation areas of this kind (i.e., urban forests) should focus on raising the attractiveness by keeping the areas clean, maintaining order, and improving recreation infrastructure. Measures to minimize social conflicts or crowding on one hand, and to enhance activity-related infrastructure on the other seem to be of subordinate importance in areas similar to the one investigated here. The goal to provide options for stimulation avoidance and to protect and improve the quality of nature in outdoor areas, which is commonly important to all residents, should be the first priority.

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