

# Urban Design and Planning

## INTRODUCING A METHOD FOR MAPPING RECREATIONAL EXPERIENCE

--Manuscript Draft--

<b>Manuscript Number:</b>	UDP-D-11-00012R1
<b>Full Title:</b>	INTRODUCING A METHOD FOR MAPPING RECREATIONAL EXPERIENCE
<b>Article Type:</b>	Article/ general paper
<b>Corresponding Author:</b>	Andrej Christian Lindholst, Ph.D. University of Copenhagen Frederiksberg C, DENMARK
<b>Corresponding Author Secondary Information:</b>	
<b>Corresponding Author's Institution:</b>	University of Copenhagen
<b>Corresponding Author's Secondary Institution:</b>	
<b>First Author:</b>	Andrej Christian Lindholst, Ph.D.
<b>First Author Secondary Information:</b>	
<b>All Authors:</b>	Andrej Christian Lindholst, Ph.D.
	Nicola Dempsey, Ph.D.
	Mel Burton, MA, CMLI
<b>All Authors Secondary Information:</b>	
<b>Abstract:</b>	<p>The provision of recreational opportunities forms an important and long-standing urban planning and management objective. However, considering a range of experiences encountered when in such spaces currently does not form part of existing open space assessment tools in the UK. In this paper, 'rec-mapping', an innovative method of analysing and mapping positive recreational experiences in urban green spaces is explored and piloted within the UK planning context. Originating in the Nordic countries, this on-site method can provide urban planners and designers with data about the extent to which specific green spaces provide and support a range of recreational experiences. The exploration reported here is based on a short review of the methods background and an application in two test sites in Sheffield, South Yorkshire in early summer 2010. This paper critically appraises the application of rec-mapping at smaller spatial scales and recommends further explorations within the UK planning context, as the method adds to existing open space assessment by providing a unique layer of information to analyse more fully the recreational qualities of urban green spaces.</p>

## INTRODUCING A METHOD FOR MAPPING RECREATIONAL EXPERIENCE

Article for Urban Design and Planning

*Version: August 16, 2011*

Submitting author

**Andrej Christian Lindholst**, Post-Doctoral Research Fellow, PhD

Forest & Landscape, University of Copenhagen, Denmark.

Rolighedsvej 23, DK-1958 Frederiksberg C

Phone: +45 3533 1796, E-mail: [chli@life.ku.dk](mailto:chli@life.ku.dk)

Co-authors

**Nicola Dempsey**, Postdoctoral Research Associate, PhD

**Mel Burton**, Research Fellow, MA, CMLI

Department of Landscape, University of Sheffield, UK.

No of words: Main text: 5,790

No of tables/figures: 9

## **Summary**

The provision of recreational opportunities forms an important and long-standing urban planning and management objective. However, considering a range of experiences encountered when in such spaces currently does not form part of existing open space assessment tools in the UK. In this paper, 'rec-mapping', an innovative method of analysing and mapping positive recreational experiences in urban green spaces is explored and piloted within the UK planning context. Originating in the Nordic countries, this on-site method can provide urban planners and designers with data about the extent to which specific green spaces provide and support a range of recreational experiences. The exploration reported here is based on a short review of the methods background and an application in two test sites in Sheffield, South Yorkshire in early summer 2010. This paper critically appraises the application of rec-mapping at smaller spatial scales and recommends further explorations within the UK planning context, as the method adds to existing open space assessment by providing a unique layer of information to analyse more fully the recreational qualities of urban green spaces.

## **Keywords**

Recreational facilities, town and city planning, urban regeneration

Title: INTRODUCING A METHOD FOR MAPPING RECREATIONAL EXPERIENCE  
Article number: UDP-D-11-00012

### Revisions and addressing comments

The authors are thankful to the reviewers for their comments. The comments have allowed us to produce an improved presentation of the material. We have sought to reflect and address all comments. Most comments have resulted in small revisions in the text. Please see below for an overview.

<b>R#1 Comments</b>	<b>Reply</b>	<b>Revisions made</b>
Address the purpose and objective more clearly in the introduction	Good comment.	Revised summary Revised introduction (last section).
whether rec-mapping could be used to fill in gaps in the existing planning process in UK	Good comment. Currently, we emphasise that the information that is provided by rec-mapping is unique in section 2 and the concluding remarks.	See reply.
Involvement of user groups?	Good comment	Included a short summary and discussion of this aspect.
The parts of article that deals with the test, learning and implementation in UK could be strengthened and changes that could make this implementation process better should be reinforced	Good comment that we have sought to address with greater attention throughout the text. However, due to space constrains our emphasis in the revisions has been on the more methodological comments below.	Small revisions have been made throughout the text.
The article needs an assessment of the designation process and a discussion of the feasibility of operating with discrete zones of very different size versus a more continuous transition of experience values.	Good comment. Other methods in the Nordic countries have dealt with this in different ways. It should be recognised that the paper explores the theme and the exercise included a good deal of learning for the participants (this was more the aim rather than rec-mapping fitting a specific planning purpose).	We included a short summary and discussion of zoning has been proposed in various references. Some pros and cons of the chosen procedure are stated. The procedure is stated as an alternative amongst other Nordic approaches – it is mentioned that other methods could have interest for planning in the UK.
The part 336 - 343 point at possibility for some experience values to co-exist and this	Good comment that also point to the fact that the rec-mapping	See above.

again raises the question whether the methods should use discrete zones or if these should be omitted or developed further	have a range of issues that should be recognised.	
Line 306 and 309 South Valley park should be changed to Sheaf Valley Park	-	Correction made
In line 335 it is stated how to record zones was found to be a matter of choice this statement opens for a very subjective and different approach for designation of zones that can vary from district to district could this have influence on the future use-	Good comment. It relates to the comments above. The qualitative and context based information that is provided by the applied version of rec-mapping also sets some limitations for comparisons across districts etc. Other versions that use pre-defined rules and quantitative register-based data may be able to do this (much) better.	See above.
Results for Sheaf Valley Park is omitted as no recreational experiences of illustrative importance could be recorded, does this relate to lack of sensitivity of the eight dimensions of the recreational experiences? Or are there other reasons? A noisy soundscape, litter and unsafe feeling are mentioned to influence and reduce the experience, were these factors included in the mapping procedure? Or should this be considered as a subjective statement in relation to part 382-390	Good comment. The omission is not due to lack of sensitivity, but simply the sheer lack of recreational experience in Sheaf Valley Park. Negative experiences such as noise certainly reduce the potential positive experiences as described in Table 1. For example, serene is hampered by artificial noise (Sheaf Valley is located next to a busy train station). Such nuisances were included in the rec-mapping.	The text has been change to make clearer that nuisances e.g. artificial noise reduce the presence/strength of an experience. It is also noted that these nuisances were only included as far as they reduced the positive experiences and that mapping negative experiences independently could be a further method development.
<b>R#1 Comments</b>	<b>Reply</b>	<b>Revisions made</b>
Page 1 line 41 DCLG, 2006, Bell et al..... Page 7 line 304 It should be note... Page 9 line 359 a simple rationale framework	-	Grammar has been corrected.
Section 2 is too long. It can be summarized including a table where the principles of each method and main differences are shown.	Good comment.	We have reduced the length of this section, but not included a new table. We believe that it is important to have some information about the UK methods in order to situate rec-mapping.
Table 1 Nature: Experience of the free growing, untouched, vital nature, "an	-	Grammar has been corrected

<p>ecounter with nature"</p> <p>Serene: experience of an undisturbed peacefulness, to be on.....and withdrawn, " at one with natural surroundings"</p>		
<p>Table 2 Would not be applicable to sum the scores? E.g. Nature: 12. Rich in species: 17, and so one... and then build a figure with the results showing which of the axis is more important, this would show which things are feasible to enhance.</p>	<p>Initially a prospective idea. The use of aggregate scores is tempting and could be one way of representing information within planning. However, based on the discussion about 'representation' in the text we refrain from aggregating scores further. One problem that would arise is the spatial size of the individual zones. For example; in an aggregation a very large zone with a good presence of an experience would equal a small zone with the same presence of the experience. The solution would be to calculate the relative size for each zone and use this for weighting each score. We believe this should not be done due to the risk of collapsing an understanding of a park as a complementary and multifunctional entity into a set of substitutes.</p>	<p>We think that the already included discussions give the answer why this is not done. However, a small discussion of this idea is now included in relation to the presentation of the table.</p>

# INTRODUCING A METHOD FOR MAPPING RECREATIONAL EXPERIENCE

## 1. INTRODUCTION

The long-term value and function of urban green spaces can be attributed to their potential to support recreation activity which in turn contributes positively to the wellbeing and health of urban populations. In the UK, this is reflected in the origins of the public park, established during the Victorian era when they were created as spaces in which residents could escape temporarily from everyday urban life, get some fresh air and take a walk: all long identified as having health benefits (Conway, 1991). While leisure and recreational activities today are different to those of the Victorian age, it can be argued that the ecological, social and, economic values and functions remain mostly the same (Newton, 2007). In this way, urban green spaces and their recreational function continue to form an important component of the urban landscape. From a planning perspective, the challenge is to deal with the recreational qualities of urban green spaces in a way that is meaningful and supports the urban population to use these spaces.

UK planning authorities often approach the conceptualization of recreational functions through categorisations of urban green space using broad and arguably vague terminology such as *country park*, *city park*, *local park*, *garden*, *sports facility*, *woodland* and *playground* provided in inventories such as Planning Policy Guidance 17 (DCLG, 2002). Minimum quality standards for facilities and levels of maintenance are set by national bodies and measured using tools such as the Local Environmental Quality Survey of England (LEQSE) and the Green Flag Awards (GFA). However, these tools do not measure the recreational value of these urban green spaces or the recreational experience to be had therein. Perhaps because recreational quality is so deeply rooted in our shared understanding of urban green spaces as recreational space per se, and these spaces are routinely assessed through objective characteristics, standards and designs, this quality is often not acknowledged in any systematic way as dependent on one's personal experience of a space rather than objective and quantitative measures.

It is argued in this paper that there is a real gap in methodological tools used in the UK which measure use of urban green spaces and which should be addressed in relation to one's experience in a space. What is here called 'rec-mapping' is part of a body of methodological tools developed in the Nordic countries which measure the recreational experience in urban green space to inform urban planning and management processes. It is proposed that rec-mapping could form part of these processes in the UK by incorporating an assessment of recreational experiences. The paper's objective is to explore rec-mapping and its merits within the UK planning and management context. Firstly, the status of qualitative assessment of parks in the UK is reviewed. The background of the rec-mapping methodology and a pilot study in two sites in Sheffield are then critically explored. The paper finally discusses the methodological challenges and provides reflections and recommendations of applying rec-mapping in a UK planning context.

## 2. QUALITATIVE ASSESSMENT IN THE UK PLANNING AND DESIGN CONTEXT

The benefits of green and open space in urban areas have long been cited and recognised in UK policy (DCLG, 2006, Bell *et al.*, 2007) and there has been a sustained commitment to improving green and open space over the last decade or so (DCLG, 2007). Recent budgetary cuts however, may have implications for the continuity of this trend. Within current government policies are a number that relate to sustainable communities and liveability which support the claims that high

quality living environments can have a positive influence on the everyday life of users and residents (Dempsey, 2009). In practice, this manifests itself as the increasing use of consultation which has become an important part of the formal urban planning and design process in the UK. The 1999 Local Government Act made it a legal requirement for local authorities to consult widely with users on aspects of the activities and services provided, marking a move towards a modernised agenda of localised decision-making (Burgess *et al*, 2001).

Several methods of qualitative assessment exist which can contribute to decision-making about green space improvements. These measure open spaces at varying levels of detail with emphasis on user's opinions. At one end of the spectrum, relatively broad-brush data are collected for the Local Environmental Quality Survey of England (LEQSE). This is undertaken by trained surveyors using a range of indicators including cleanliness, 'environmental crime' such as graffiti and standards of maintenance (Keep Britain Tidy, 2010). As they do not ask users about their opinions it can be described as an 'expert-led' assessment method.

A more inclusive approach can be found in GreenSTAT, an online tool that allows residents to comment anonymously on the quality and use of their local open spaces (GreenSpace, 2006). The survey questions, however, are closed providing little opportunity for in-depth commentary on what in particular users like or dislike. The resulting aggregated datasets of 'accurate and reliable visitor feedback' are only accessible by local authority practitioners and used as part of their process of 'informed decision making' (GreenSpace, 2010, CABE Space 2010).

GreenSpace advises that GreenSTAT can be incorporated into entries for the Green Flag Award. This scheme assesses and promotes high quality urban parks and green spaces and has become a significant 'quality' benchmark. (DCLG, 2006). Assessment is undertaken by trained Green Flag judges using a range of objective measures such as cleanliness and the presence of a management plan. A qualitative assessment is made which measures perceptions of how welcoming, safe and healthy a place feels (Greenhalgh and Parsons, 2004). Evidence of community involvement, consultation and community-led activities must be provided but the assessment does not call directly on users' opinions and perceptions of the space. Specific reference is made to recreation insofar as the management plan must 'demonstrate that there are appropriate levels of recreational facilities and opportunities for all sectors of the community' (Civic Trust, 2008, p. 12) but there is no focus on users' recreational experience per se.

A more direct assessment of green space is provided by Spaceshaper as a method of measuring quality of space combining quantitative and qualitative assessments (CABE Space, 2007). It is a participatory appraisal method in which stakeholder participants, led by a trained Spaceshaper facilitator, rate the site against a range of characteristics which relate to use, access, community, design and how the space makes them feel. While Spaceshaper allows participants to comment on the activities and opportunities provided by a space, it does not measure the recreational experience further than asking how the participants 'feels' about the space. Spaceshaper results have been applied in different ways including incorporation into future urban designs and plans, and adoption as a means of assessment by local authorities (CABE Space, 2007).

Finally, experiential landscape (EL) mapping offers a further example of measuring experience in the environment. Applied at a variety of scales, EL mapping has been developed to shed light on how people attach significance and value to places, how people orientate themselves when in an environment and how a sense of belonging is developed (Thwaites and Simkins, 2007). It differs from 'rec-mapping' as it is broader in its scope and scale, focusing on a wide range of experiences.



Examples of its application include contribution, through participation with users, to a rural village's design statement and to create designs for improving school grounds (Experiential Landscape, 2010).

Qualitative assessment of open space can contribute to the urban planning and design process, however it should be noted that such inclusion is not statutory. Furthermore, none of these methods directly measure one's recreational experience when in a particular green space, pointing to a potential gap that needs to be addressed. This is particularly important when applying for funding, or protecting existing budgets as evidence will be required to demonstrate how spending makes a difference to residents and users of open spaces (ibid.). The next section presents rec-mapping as a method which addresses this gap.

### 3. 'REC-MAPPING': MEASURING RECREATIONAL EXPERIENCE

In the Nordic countries – particularly in Sweden, Denmark and Finland – various research and planning efforts over the last 25 years have sought to elaborate systematic measurement and analysis of the recreational qualities of urban green spaces. Methods developed to do this – and what we here call 'rec-mapping' – have been applied to help planners and designers understand the recreational qualities of urban green spaces based on how urban populations perceive and experience these spaces. The tradition includes methods that integrate various research-supported concepts such as 'park characters' (Berggren-Bärring and Grahn, 1995; Nordh, 2010), 'experience worlds' (Regionplane- och trafikkontoret, 2001), 'experience values' (Caspersen and Olafsson, 2006), 'sociotopes' (Ståhle, 2006), 'social values' (Tyrväinen *et al.*, 2007) and 'experience classes' (Caspersen and Olafsson, 2010). Common among these methods is the focus on observation/registration of various physical characteristics of recreational qualities in urban landscapes in the operationalization of theoretical concepts for the purpose of planning and management support.

In line with the tradition's core focus on a range of important recreational qualities, Grahn and Stigsdotter (2010) proposed a change by viewing people's experience of positive recreational qualities as a set of so-called 'perceived sensory dimensions' (PSDs). In line with methods and findings in earlier research (especially Berggren-Bärring and Grahn (1995)), they confirmed that the Swedish population perceives recreational experience in urban green spaces through eight dimensions. The eight experiences are listed and described in Table 1. Each experience is furthermore associated with various recreational and outdoor activities.

Applications that use a 'perception-based' approach have subsequently been developed. The focus in operationalization has centred on perception and cognition rather than observation/registration of physical characteristics. Based on such an approach, Randrup *et al.* (2008) addressed broader knowledge needs, such as health promotion, in a planning situation in Denmark though the identification of recreational experiences via on-site analysis. Subsequently, Schipperijn (2010) applied this method in a range of studies of the quality and public use of green spaces and Lindholst (2010; Lindholst *et al.*, 2010) adopted and modified the method further for practical application in park and nature management.

\*\*\*\* Table 1 around here \*\*\*\*

Initially, Randrup *et al.* (2008) developed a highly formalized and expert-based procedure for rec-mapping with the aim of achieving a high degree of quantification as a measurement (calculated as a total aggregated score) for an urban green space's recreational value. A score from 0 to 3 was given for each experience in predefined zones. In order to make the designation of zones relatively objective, a method for dividing a park into zones was derived from Gustavsson and Ingelög's (1994) classification and identification of 'forest rooms' into different types with relatively objective characteristics. The identification of four 'room types' ('open', 'semi-open', 'clearing' and 'enclosed') was applied to zone a site. Aggregate scores for each zone were weighted against its relative size of the total area. Schipperijn (2010) tested this approach against the perceived attractiveness and found no statistical evidence that high scores correspond to attractive urban green spaces in the eyes of users. A reason for the suspected inappropriateness of using quantitative measures to assess recreational qualities may be that, just as urban green spaces can be viewed as 'restorative pauses' within the built-up environment, 'pauses' may also be needed between experiences in order to comprehend and appreciate their qualities. Although intuitively understandable, 'more' is not necessarily 'better'. Following the understanding developed by Regionplane- och trafikkontoret (2001, 2004) in their work on 'experience worlds' in the green structure in the Stockholm region, it can be argued that 'buffer zones', or transition spaces, are needed with no recreational experiences within a high quality recreational urban green-space. Likewise, Ståhle (2006) warned that the benefits arising from the inherent heterogeneity of urban space may recede if focus shifts from complementarity to substitutability. Each experience may therefore in itself better be viewed with no innate ranking order in their potential worth and use value. On the other hand, representation of an experienced space within planning necessarily does imply a certain level of reductionism or quantification (Ståhle, 2006). For example, Grahn and Stigsdotter (2010) found that from a health perspective some (combinations of) experiences are in general more beneficial than others. Following Ståhle (2006), the challenge for city planning is then to produce a practically useful method which at the same time meaningfully represents the valued places and experiences of users.

While biological and physical influences certainly are present in one's cognition of, and preferences for, urban green spaces, personal, social, cultural, and geographical differences are also influential (Bourassa, 1990; Herzog, 1992; Home *et al.*, 2010; Purcell *et al.*, 1994; van den Berg and van Winsum-Westra, 2010; van den Berg *et al.*, 1998). Individual as well as general public preferences for recreational experiences are therefore likely to differ across personal, social, cultural, and national boundaries. This implies that one's experience is partially influenced and learned through socialization and shared information – or what Faehnle *et al.* (2011) call 'inter-subjective action', and is context-dependent. It also implies that cognitive categories (i.e. the dimensions of the recreational experience) may differ across boundaries and contexts. It therefore follows that experiences in a Swedish or Nordic context may not be valid to the same extent in a UK context.

With the importance of representation and context in mind, Lindholst *et al.* 2010 (and Lindholst, 2010) suggested a pragmatic procedure that tailors rec-mapping to its context. This allows the procedure to be highly adaptive to purpose, methods, participants, communication needs and circumstances and enables various understandings of the recreational qualities at different scales within a particular green space. A drawback of tailoring the procedure is its limiting potential for comparing different sites' recreational qualities across larger spatial entities (e.g. all green spaces across a city or region) within the planning system. However, a highly tailored procedure allows a deeper qualitative understanding of a site or an exploration of the method itself as presented here.

Rec-mapping was applied in a pilot study at two sites in Sheffield, UK as a pragmatic and context-sensitive procedure.

#### 4. REC-MAPPING IN SHEFFIELD: PILOTING THE METHOD

The pilot study was organised as a two-day workshop, where an adapted version of rec-mapping, its merits, theoretical background and proposed application were introduced and subsequently tested in two sites with researchers and practitioners and subjected to a post-exercise evaluation. The workshop was conducted in Sheffield in the summer of 2010 with practitioners from Sheffield City Council, South Yorkshire Forest Partnership, members of a community organisation (Friends of Firth Park), and researchers representing different academic disciplines from the Universities of Copenhagen and Sheffield. Two sites in Sheffield were selected as test sites. At the time of the exercise, these sites were targeted for urban regeneration investment. The two test sites were: 1) Firth Park, a well-functioning and well-visited Green Flag awarded Victorian park located in a residential area in the north of the city, which was redeveloping a largely unused and disconnected area of the park which offered few facilities and attracted very few visitors; and 2) the South Street open space, part of Sheaf Valley Park, a run-down green space located in the city centre behind the city's railway station, associated with anti-social behaviour including drug use and largely used by local residents to access the station and city beyond. Figures 1 and 4 provide aerial maps of the spaces. There is a key difference between the two sites: Firth Park had a considerable number of recreational facilities while Sheaf Valley Park had none.

##### 4.1. Firth Park

Firth Park is situated 3 miles north of Sheffield city centre and is approximately 15.2 ha in size (Figure 1-3). Firth Park is listed by Sheffield City Council as a City Park and Heritage Site, and is on the English Heritage Register of Parks and Gardens of Special Historic Interest (SCC, 2009). The features of the park are varied: woodland, open amenity grassland areas, specific sports facilities (including bowls, cricket and basketball), children's playground and community buildings. A historic clock tower, former boating lake and Hinde Common Wood are situated on one side of a main road, Firth Park Road, with the rest of the park and recreational and community facilities on the other side. Firth Park is one of Sheffield's oldest and most historic parks, opened in 1875, and fell into decline in the late 1970s. The establishment of the 'Friends of Firth Park' group in 1999 was central to the reversal of Firth Park's decline (Burton, 2010). The rec-mapping exercise was conducted in all parts of the park apart from Hinde Common Wood due to time constraints.

\*\*\* Figure 1 \*\*\*

\*\*\* Figure 2-3 \*\*\*

##### 4.2. Sheaf Valley Park

Sheaf Valley Park was the name given to a new city park underpinned by a vision of linking a series of open spaces from the city centre to Norfolk Park, one of the city's oldest public parks, situated 1 mile south-east of the city centre, which are undergoing a process of regeneration

(Figures 4-6). The rec-mapping exercise was conducted in one part of Sheaf Valley Park owned by Sheffield City Council and referred to as the South Street open space. This space is located on a steep incline situated between the Park Hill flats and wider residential area beyond and the train station which acts as gateway to the city centre (SCC, 2010). The site's function as a green corridor between residential areas and the train station/city centre is illustrated in Figure 5. This space was mainly used as a through-route as, apart from the steep banks of grass, there are no benches or sitting areas in which people might linger. Anti-social behaviour has been a problem due to poor lighting, no natural surveillance as there are no houses overlooking the space and clusters of trees where drug-taking and drinking has taken place in the past. The South Street open space arguably had a reputation for being something of a forgotten or 'non-space' and was targeted for regeneration (MP4 Project, 2010).

\*\*\*Figure 4 \*\*\*

\*\*\*Figure 5-6 \*\*\*

#### 4.3. Applying the method

Before conducting the rec-mapping, the participants attended a class-based session which focused on the background and general understanding of the eight experiences and outlined the practicalities of carrying out a site analysis based on these experiences. Through early feedback from participants, it became clear that there were some difficulties in applying the terms as described in Table 1 because of differences in language interpretation and cultural understandings. For example, some participants highlighted 'prospect' as an inaccurate description of how they might interpret the term. When interpreting this particular dimension, Grahn and Stigsdotter (2010) make reference to the idea of hunting grounds and savannahs, whereas the participants interpreted it as a term indicating broad views across and out of the park. This issue is illustrated in Figure 6.

The tools for the on-site analysis were site maps and pens to mark the presence and strength of participants' experiences. Participants were divided into small groups and asked to mark experiences according to where they occurred on the site map, as 'zones', and their perceived strength indicated on a scale from 0-3 (from 'no' to a 'full' experience). The exercise was conducted in both parks. Participants were asked to record the presence and strength of experiences by a process of interpreting and discussing their perceptions of the particular space and, where necessary, with reference to local knowledge. The process was subject to ongoing discussions in the groups. The groups were also encouraged to take photos and notes to provide information explaining their decisions.

The results of the on-site analysis for Firth Park is summarised in Table 2 and graphically depicted in a 'thematic' rec-map (Figure 7). Experiences (and their zones) were found to overlap creating multi-experiential spaces in different ways. It could be tempting to aggregate scores for each experiences in Table 2 in order to identify the most defining experiences for Firth Park. However, such a step is problematic due to the issues discussed relating to aggregation of what is basically held to be qualitative information. It should also be noted that the graphical representation of the

rec-map based on the data table for Firth Park could be presented differently. Formats may be adapted to meet communication needs in other planning contexts. Sheaf Valley Park was also mapped for recreational experiences but a data table and maps are omitted in this article as no recreational experiences of illustrative importance could arguably be recorded. Figure 5 illustrates a typical scene in Sheaf Valley Park. Low experience of refuge and space could be recorded, but the design and features of the park did not inspire such experiences in any measureable degree. Nuisances such as a noisy soundscape, litter and an unsafe feeling were found to reduce any potential positive experiences. The lack of clear recognisable experiences was also observed to frustrate the participants as learners of the method. The contrast in the level of experiences between the two test sites points to the conclusion that to be useful for learning purposes a site must contain a stronger set of experiences.

\*\*\* Table 2 \*\*\*

\*\*\* Figure 7 \*\*\*

The exercise revealed interesting aspects about the rec-mapping methodology. As the exercise was a learning event for the groups the thematic maps are not accurate in the sense that the same groups would reach the same result if they did the same exercise again (now as more experienced rec-mappers). More zones and experiences would possibly be recorded as groups developed greater sensitivity to experiences and became more able to identify them, both aspects which might increase the longer they spent on site.

The zones defined in the map in Figure 7 were not designated in advance of the exercise or drawn systematically on a formal pre-defined understanding of what constitutes a zone (such as the four room types). A potential issue with using pre-defined zones before identifying experiences is that, unless a park is unusually well-designed, some experiences which may be associated with larger zones may actually only be found to be present to a certain extent. This would lead to inaccuracies in the subsequent graphical representation (as well as in the case of quantification). Without a set of predefined zones or clear methodological rules, designating a site and graphically representing zones are somehow subjective – or highly context-dependent. The accuracy would then depend on clear specification of the planning purpose driving and guiding the mapping exercise. The context dependent approach allows a decision to be made on how ‘deep’ a map should go in identifying experiences and their zones. This might vary from a rough perception of a large area to mapping the detailed differences in one’s experience that occur by moving just a few metres. In a planning situation there might be a need to assess the overall character of a space (for example, does it have nature or culture qualities) or to focus on redesigning a space to establish small refuge areas.

Learning was the main purpose of the exercise. How to record zones was therefore left as a matter of deliberated choice for the groups. Experiences and zones were identified at different spatial scales and, in some cases, were justified by clear cues for demarcation such as fenced areas like playgrounds or the structure of the landscape (with visible correspondence with one of the four room types) and in other cases the clues were more uncertain due to unclear or blurred transitions between zones.

Due to the applied procedure, the map illustrates alternative ways of designating in the site and representing zones graphically. In the upper part of the map, zone 11 (main park entrance) cuts across several other zones due to a strong cultural experience. The same is the case with zone 22 (lonesome pine). The zone is located within a larger zone due to the perception of being within a different recreational experience zone demarcated by shade and transitions, but still being connected with a larger zone. Other zones, such as zone 3 (common wood) or zone 9 (play area), were found roughly to cover spatially different experiences within the same demarcation.

In earlier methods such as park character analysis, 'nature' and 'culture' (and 'serene' and 'social') would somehow be seen as mutual exclusive. Indeed, Berggren-Bärring and Grahn (1995) found that the difference between these two properties represents the most fundamental clue in our perception and characterisation of urban green spaces. In general this makes sense, but in the pilot study these experiences were also found to co-exist in some zones of Firth Park, notably, in zone 20 (Donkey Hill). A mix of dense wild-growing forest and formal wood sculptures and colourful birdboxes gave rise to mapping these experiences within the same zone. Also in zone 7, a bowling green, apparently exclusive experiences in the form of refuge and prospect are found to co-exist. This was evaluated to be a result of a potential mixed use of the space depending on time and user groups.

## **5. REFLECTIONS ON THE APPLICATION OF REC-MAPPING**

Throughout the process, comments and reflections were primarily documented via handwritten notes, supplemented by photo material, graphical presentations and rec-maps. An internal report was written up including sections on rec-maps and site analysis, collection of reflections made by practitioners and researchers, and various other materials. Based on these materials, the researchers elaborated a range of reflections that aimed to assess rec-mapping's merits as a planning method in UK.

The rec-mapping process allows people to focus their attention on a space while spending time within it making on-site observations which they may never have done before. It provides a 'snapshot' of experiences and their location within a site and can easily be conducted again at a later date if refurbishments are carried out, as it is not an overly time- or cost-intensive method of data collection. A further benefit of the methodology is how it can be summarised in a range of formats including data tables, rec-maps, photos, keywords and descriptions, and integrated into a GIS.

The methodology is relatively robust and research-based, with theoretical and empirical underpinnings, and provides an analytical approach to understanding people's perceptions of space using a simple rationale framework. In addition, it provides planning and design professionals with a tool for site management and forward planning which can highlight areas of potential development and investment. It also provides experts and users with an opportunity to engage in dialogue about local spaces which are important to the community or may be in the future.

Beyond the specification of purpose, the 'accuracy' of rec-mapping also seems to depend on several dynamic aspects that are not always present when conducting an on-site analysis. These include the ability both to filter certain temporary influences away such as weather conditions or one's individual mood on that particular day. Taking local knowledge into account is also important: this may relate to existing knowledge about particular user groups and behaviours, or about

specific trees and plants, such as a bluebell glade which may not be in flower. Both the ability to create and read a rec-map meaningfully requires knowledge on how to interpret experiences in particular circumstances and understand their importance for the recreational value, according to the descriptions provided in Table 1.

There are some drawbacks to rec-mapping which became apparent throughout the pilot exercise. The methodology does not allow participants to account for how people actually use spaces as it is perception-based and focused on the location of the various potential experiences. It is for this reason that planners and designers alone should not conduct the rec-mapping exercise as they are not necessarily local residents or users of the space: it is important that local users are involved in the process to provide contextual information. Gauging the experiences of different user groups is not wholly possible using the rec-mapping methodology unless 'user groups' are represented, e.g. ethnic minority groups/ teenagers, which requires a desire to be involved which cannot always be assumed.

Another drawback of the methodology is that it currently only focuses on positive experiences and not negative ones, underlining the assumption that people actively seek positive experiences in green spaces (Grahn and Stigsdotter, 2010). Thus nuisances are only recorded insofar as they reduce positive experiences. This is an oversight in an applied exercise because there may be parts of a park that people avoid due to negative experiences: with this information added, planners and designers could use rec-mapping as a way of identifying areas which are perceived in terms of negative experiences. Tyrväinen *et al.* (2007) suggested and mapped three important negative experiences ('scariness', 'unpleasantness' and 'noise') at the city scale in Helsinki, Finland. Such negative experiences might be adopted for further innovation of an applied method. A further drawback was highlighted and related to the experience one has at the park entrances and in other 'transition' or 'buffer zones' as described earlier. It is to be expected that users would have different experiences in these 'transition' spaces but this factor needs to be incorporated into the methodology to capture the experience of passing from one kind of space to another. Qualitatively, such spaces also indicate and/or delimit any 'positive' experience in nearby spaces by providing a clear clue or contrast for the change in one's experience.

On the other hand, rec-mapping allowed participants a new language for describing their recreational experience and locate these through zoning the park. For example, participants were able to identify multiple experiences, such as the experience of nature, serene, space and refuge in the area of dense woodland around Donkey Hill in Firth Park (area 19). This kind of qualitative information cannot be measured or captured using existing green space characterisations, which are limited to a description of the features (for example, woodland) or uses (for example, walking) in a space. This is particularly interesting when examining spaces which have little recreational value: while objective measures may record Sheaf Valley Park as biodiversity-rich green space with ecological benefits, the personal experiences collected via rec-mapping highlight strongly the lack of recreational experience to be had therein, indicating a need to improve it with users in mind.

It should also be noted that there were some limitations of the pilot investigation itself. The rec-mapping was not trialled with as wide a range of stakeholders as was hoped. For this reason, it is not possible to be completely sure that all experiences and recreational values are recorded. Although user groups were included in the rec-mapping exercise, the pilot study did not provide a basis for any suggestion regarding the possible role and benefits of user and public participation in rec-mapping at small spatial scales. As a proposal, user involvement may be done by standard

procedures as described by Cowan *et al.* (2010). Results based on rec-mapping would form part of the planning process as information for further deliberation by various stakeholders including users and the public. In comparison, information on recreational experiences has mainly been integrated into planning in Sweden and Finland through surveys of general preferences at city level.

The current state of affairs renders the proposed rec-mapping procedure as a job ideally for a group of professionals possessing both local knowledge and rec-mapping expertise. However, this comes with a caveat. Based on her work with the park character analysis, Nordh (2010) recommends that experts with no special interests carry out or oversee the procedure as professionals within an organisation may have particular interests that bias the procedure and results.

The pilot study assumed that the eight experiences were equally relevant for the UK context as their originating context in Sweden. This may be an oversight as geographical or cultural difference may have endowed the population (and groups within the population) with a different set of perceptions. However, it is clearly beyond this paper to identify or confirm relevant cognitive dimensions for the UK population. It should be noted though that the experiences represented in Table 1 were considered relevant in the pilot study. New research within the UK context based on the same methodology as applied by Berggren-Bärring and Grahn (1995) and Grahn and Stigsdotter (2010) could be intriguing and address this issue fully.

Two specific sites were examined which, while providing usefully divergent examples, are not fully representative of urban green spaces and more sites need to be rec-mapped in the UK to test the robustness of the methodology and confirm the applicability of the terminology used. The pilot study in Sheffield was applied to small spaces, but methods for larger spatial scales could be relevant to the UK planning context as well. This includes methods developed for identification of recreational qualities at regional scales such as the method forwarded by Caspersen and Olafsson (2010). A large spatial scale approach would also address some of the shortcomings of the localized and contextualized slant of rec-mapping as applied in the pilot study in Sheffield. For example, a more objective designation of experience zones would enable more reliable information for comparison and planning at city or regional level.

## 6. CONCLUSIONS

There is currently no statutory obligation for evaluation to form a part of planning processes in the UK, despite being widely supported as providing important information not collected elsewhere (Dempsey and Burton, 2011). In general, it is advisable for planners and designers to take a pragmatic and collaborative approach to understanding how a space is used and might be in the future. The pilot shows that rec-mapping is a useful tool for effectively 'zoning' a space and getting an understanding of users' potential recreational experience(s) in different parts of that space. It provides a new language for identifying the potential for improvement with the advantage that it is not simply immersed in discussions about characteristics and features such as inventories or maintenance standards, but about the quality and location of recreational experiences as well. The pilot shows that as rec-mapping does not provide a framework for an exhaustive qualitative characterisation; it should complement other methods of green space measurement to contribute to a fuller understanding of the site(s) in question. While the eight experiences 'made sense' in the pilot project, it was also clear that it is necessary to consider the context within which rec-mapping is conducted, and that some aspects of the methodology may need to be adapted (such as specific



terms used and spaces explored) beforehand. Overall, rec-mapping provides a new layer of information which cannot be measured in existing qualitative open space assessments. Alongside other, more objective methods, rec-mapping is a relative robust method for evaluating recreational quality and can provide planners and designers with an improved understanding of the recreational qualities of a site, and can help identify potential areas for recreational improvements. These merits mean that rec-mapping fits well into typical planning processes and adds to the pool of information upon which sound planning and investment decisions should be based.

## REFERENCES

- Bell, S., Montarzino, A. & Travlou, P. (2007). Mapping research priorities for green and public urban space in the UK. *Urban Forestry & Urban Greening* **6**, No. 2, 103-115.
- Berggren-Bärring, A.M. and Grahn, P. *Grönstrukturens betydelse för användningen: en jämförande studie av hur människor i barnstugor, skolor, föreningar, vårdinstitutioner m fl organisationer utnyttjar tre städers parkutbud*. Sveriges lantbruksuniversitet, Alnarp, 1995, Landskapsplanering Rapport 95:3, pp. 1–310.
- Bourassa, S.C. (1990). A Paradigm for Landscape Aesthetics. *Environment and Behavior* **22**, No. 6, 787-812.
- Burgess, P., Hall, S., Mawson, J. & Pearce, G. *Devolved approaches to local governance: Policy and practice in neighbourhood management*. Joseph Rowntree Foundation, York, 2001.
- Burton, M. *MP4 WP2.1 Peer Review of Model Agreements for Place-keeping: Friends of Firth Park and Sheffield City Council*. Working paper, South Yorkshire Forest Partnership, Sheffield, 2010. Available on request at <http://www.mp4-interreg.eu>.
- CABE Space. *Spaceshaper: a user's guide*. CABE, London, 2007, pp. 1-21.
- CABE Space. *Urban Green Nation: building the evidence base*. CABE, London, 2010, pp. 1-56.
- Caspersen, O.H. and Olafsson, A.S. *Oplevelsesværdier og det grønne håndtryk. En metode til kortlægning og udvikling af friluftsoplevelser i hovedstadsregionen*. By- og landsplanserien. Nr. 27-2006. Center for Skov, Landskab og Planlægning, KVL, Hørsholm, 2006, pp. 1-96.
- Caspersen, O.H. & Olafsson, A.S. (2010). Recreational mapping and planning for enlargement of the green structure in greater Copenhagen. *Urban Forestry & Urban Greening* **9**, No. 2, 101-112.
- Civic Trust. *Park and green space self assessment guide: A guide to the self assessment of the quality of your parks and green spaces using the Green Flag Award criteria*. Civic Trust, Liverpool, 2008, pp. 1-30.

- CABE (Commission for Architecture and the Built Environment). *Spaceshaper in action*. CABE, London, 2011. See [www.cabe.org.uk/public-space/spaceshaper/examples](http://www.cabe.org.uk/public-space/spaceshaper/examples) for further details. Accessed 30/07/2011.
- Conway, H. *People's Parks: the design and development of Victorian parks in Britain*. Cambridge University Press, Cambridge, 1990.
- Cowan, R., Adams, S. and Chapman, D. *Qualityreviewer: appraising the design quality of development proposals*. Thomas Telford, London, 2010.
- Dempsey, N. (2009). Are good-quality environments socially cohesive? Measuring quality and cohesion in urban neighbourhoods. *Town Planning Review*, **80** No. 3, 315-345.
- Dempsey, N. & Burton, M. (submitted) Defining place-keeping: the long-term management of public spaces, *Urban Forestry and urban Greening*.
- DCLG (Department for Communities and Local Government). *Planning Policy Guidance 17: planning for open space, sport and recreation*. Department for Communities and Local Government, London, 2002, pp. 1-15.
- DCLG (Department for Communities and Local Government). *Strong and Prosperous Communities: the local government white paper*. Stationery Office, London, 2006, Vol. 1+2.
- DCLG (Department for Communities and Local Government). *How to create quality parks & open spaces*. Department for Communities and Local Government, London, 2007, pp. 1-138.
- Experiential Landscape. Projects, Experiential Landscape, University of Sheffield. 2010. See [www.elprdu.com/projects.html](http://www.elprdu.com/projects.html). Accessed 15/03/2011.
- Faehnle, M., Bäcklund, P. Tyrväinen, L. (2011). Looking for the role of nature experiences in planning and decision making: A perspective from the helsinki metropolitan area, *Sustainability: Science, Practice, & Policy* **7** No. 1, 45-55.
- Grahn, P. & Stigsdotter, U.K. (2010). The relation between perceived sensory dimensions of urban green space and stress restoration, *Landscape and Urban Planning* **94**, No. 3-4, 264-275.
- Greenhalgh, L. and Parsons, A. *Raising the Standard: the Green Flag Award Guidance Manual*, CABE, London, 2004, pp. 1-60
- GreenSpace. *GreenSTAT questionnaire*. GreenSpace, Reading, 2006. See [www.greenstat.org.uk](http://www.greenstat.org.uk). Accessed 30/03/2011.
- GreenSpace. *Applying GreenSTAT*. GreenSpace, Reading, 2010. See [www.green-space.org.uk/greenstat/applications](http://www.green-space.org.uk/greenstat/applications). Accessed 30/03/2011.

- Gustavsson, R. and Ingelög, T. *Det nya landskapet: Kunskaper och idéer om naturvård, skogsodling och planering i kulturbyg*. Skogsstyrelsen, Jönköping, 1994, pp-1-360.
- Herzog, T.R. (1992). A cognitive analysis of preference for urban spaces, *Journal of Environmental Psychology* **12**, No. 3, 237-248.
- Home, R., Bauer, N. & Hunziker, M. (2010). Cultural and Biological Determinants in the Evaluation of Urban Green Spaces. *Environment and Behavior* **42**, No. 4, 494-523.
- Keep Britain Tidy. *The state of England's local environment: A survey by Keep Britain Tidy 2009/10*. Keep Britain Tidy, Wigan, 2010. pp. 1-108.
- Lindholst, A.C. *Rough Guide to Rec-mapping and Planning*. EU NSR Interregional IVB project MP4. University of Copenhagen, Copenhagen, 2010. Available on request at [www.mp4-interreg.eu](http://www.mp4-interreg.eu).
- Lindholst, A.C., Nuppenau, C. & Hune, B.S. (2010). Anvendelse af oplevelsesværdier i planlægningen. *Teknik & Miljø* **7/8**, pp. 32-36.
- Newton, J. *Wellbeing and the Natural Environment: A brief overview of the evidence*. Defra (Department for Environment, Food and Rural Affairs), London, 2007. pp. 1-53.
- MP4 Project. *Projects on the Ground: Sheaf Valley Park, South Yorkshire Forest Partnership*. Sheffield, 2010. Available on request at [www.mp4-interreg.eu](http://www.mp4-interreg.eu).
- Nordh, H. *Park characteristics: A tool for classifying and designing urban green spaces*. Saarbrücken, VDM Verlag, 2010, pp. 1-68.
- Purcell, A.T., Lamb, R.J., Mainardi-Peron, E. & Falchero, S. (1994). Preference or preferences for landscape? *Journal of Environmental Psychology*, **14**, No. 3, 195-209.
- Randrup, T.B., Schipperijn, J., Hansen, B.I., Jensen, F.S. and Stigsdotter, U.K. *Natur og sundhed*. Skov og Landskab, Hørsholm, Park og Landskabsserien No 40, 2008, pp. 1-154.
- Regionplane-och trafikkontoret. *Upplevelsevärden: Sociala kvaliteter i den regionala grönstrukturen*. Regionplane- och trafikkontoret, Stockholm, 2001, pp. 1-54.
- Regionplane-och trafikkontoret. *Järvakilen: Upplevelsevärden i Stockholmsregionens gröna kilar*. Regionplane- och trafikkontoret, Stockholm, 2004, pp. 1-47.
- Schipperijn, J. *Use of urban green space*. Forest & Landscape, University of Copenhagen, Frederiksberg, 2010, PhD thesis, pp. 1-155.
- SCC (Sheffield City Council). *Firth Heritage Park, Sheffield: Green Flag Management Plan 2008 – 2012*. Sheffield City Council, Sheffield, 2009, pp. 1-94.

- 1 SCC (Sheffield City Council). *South Street Open Space*. Sheffield City Council, Sheffield, 2010.  
2 See [www.sheffield.gov.uk/planning-and-city-development/regeneration/housing-](http://www.sheffield.gov.uk/planning-and-city-development/regeneration/housing-regeneration/south-sheffield-regeneration/sheaf-valley-park)  
3 [regeneration/south-sheffield-regeneration/sheaf-valley-park](http://www.sheffield.gov.uk/planning-and-city-development/regeneration/housing-regeneration/south-sheffield-regeneration/sheaf-valley-park). Accessed 25/11/2010.  
4  
5  
6 Thwaites, K. and Simkins, I. *Experiential Landscape: an approach to people, place and space*.  
7 London, Routledge, 2007.  
8  
9  
10 Ståhle, A. (2006). Sociotope mapping – exploring public open space and its multiple use values in  
11 urban and landscape planning practice. *Nordic Journal of Architectural Research* **19**, No. 4, 59-  
12 71.  
13  
14  
15 Tyrväinen, L., Mäkinen, K. & Schipperijn, J. (2007). Tools for mapping social values of urban  
16 woodlands and other green areas. *Landscape and Urban Planning*, **79**, No. 1, 5-17.  
17  
18  
19 van den Berg, A.E. & van Winsum-Westra, M. (2010). Manicured, romantic, or wild? The relation  
20 between need for structure and preferences for garden styles. *Urban Forestry & Urban*  
21 *Greening* **9**, No. 3, 179-186.  
22  
23  
24 van den Berg, A.E., Vlek, C.A.J. & Coeterier, J.F. (1998). Group Differences in the Aesthetic  
25 Evaluation of Nature Development Plans: A Multilevel Approach. *Journal of Environmental*  
26 *Psychology* **18**, No. 2, 141-157.  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

## Captions

Table 1. Overview on eight dimensions of the recreational experience of urban green space (Adapted from Grahn and Stigsdotter 2010)

Figure 1. Aerial map of Firth Park. The solid line shows the park boundary; dotted line indicates an area under redevelopment in 2010-12.

Figure 2. A symbolic artwork telling the story of Sheffield in Firth Park

Figure 3. A early spring view of playgrounds and facilities in Firth Park

Figure 4. Aerial map of Sheaf Valley Park. The solid line shows the park boundary; dotted line indicates the area under redevelopment in 2010-12.

Figure 5. A typical view the greenery in Sheaf Valley Park.

Figure 6. A view out of Sheaf Valley Park toward Sheffield's city centre.

Table 2. Recreational experience data table for Firth Park

Figure 7. Rec-map of Firth Park

Nominal name	Short description/interpretation	Important characteristics
Nature	Experience of the free growing, untouched, vital, “an encounter with nature”.	No visible man-made facilities or traces, visible or audible. ‘Natural areas’.
Richness in species	Experience of richness in plants, insects and/or animals.	Presence of different or special plants, flowers, insects and/or animals. Possibility to gather mushrooms, fruits etc.
Serene	Experience of an undisturbed peacefulness, to be on one’s own, in safety and withdrawn, “at one with natural surroundings”.	No artificial noise (e.g. transport), few or no other humans, no litter, no paths/transport corridors.
Space	Experience of an independent, homogeneous, inter-connected and special ‘universe’.	No cross-cutting paths or disturbing features. At least two types: An ‘avenue of old beech trees’ or ‘an open horizon’, e.g.at a lake/the sea.
Refuge	Experience of safe surroundings and facilities for expression, play and interactions with other people.	Demarcated and uncluttered space/place by trees, bushes, fences. Play facilities, tables/benches, meet animals: e.g. ‘playground’.
Prospect	Experience of open and free surroundings for expression and activity.	Open and accessible space with grass/ sports fields. Supporting facilities such as lighting, changing rooms: ‘the common’.
Social	Experience of an organized and entertaining scene and getting together with other people.	Facilities, services, activities, café, restaurants, benches, tables, barbeque and entertainment: ‘a social scene’.
Cultural	Experience of cultivated, man-made surroundings formed by history and/or culture.	Historical features and buildings, sculptures, statues, fountains, canals, flower stands, well-manicured bushes, formal elements: ‘historical and cultural space’.
Table 1. Overview of eight dimensions of the recreational experience of urban green space (Adapted from Berggren-Bärring and Grahn 1995 and Grahn and Stigsdotter 2010)		

Zone	Nature	Rich in Species	Serene	Space	Refuge	Prospect	Social	Culture	Notes
1	-	2	3	-	-	-	-	1	Bluebell garden
2	-	-	-	-	1	1	1	1	Boating lake area
3	3	2	-	2	-	-	-	-	Common wood
4	-	-	-	-	-	-	-	-	Road transition zone
5	-	-	-	2	-	3	2	-	Open park
6	-	1	-	-	-	1	-	-	Behind bowling green
7	-	-	-	-	3	3	3	1	Bowling green(s)
8	-	1	-	-	-	-	-	-	Edge
9	-	-	-	-	3	-	3	-	Play area
10	-	-	-	-	-	-	-	2	Bedding plants
11	-	-	-	-	-	-	3	3	Main park entrance
12	-	2	1	-	-	-	-	3	Hard landscaping and plantings
13	-	-	-	-	-	-	1	-	Café
14	-	-	-	-	-	-	-	3	Park entrance (streetscape)
15	-	-	-	-	-	1	-	-	Open space
16	-	-	1	-	-	-	1	-	Teen shelter
17	-	-	-	-	-	-	3	-	Allotments
18	2	2	2	1	-	-	-	-	Entrance to Donkey Hill
19	3	-	3	2	3	-	-	-	Dense woodland
20	3	3	3	-	-	-	-	2	Donkey Hill
21	-	-	1	-	2	2	2	-	Cammell Road
22	-	-	-	2	-	-	2	2	Lonesome pine
23	1	-	1	-	-	-	-	1	Park entrance
24	-	2	-	-	-	-	-	-	Road edge
25	-	-	-	-	-	-	-	-	Car-park 'non-space'
26	-	2	-	-	-	-	-	1	A 'habitat' hotel

Table 2. Firth park, Experience data table. Legend: ‘-’ = No experience, ‘1’ = weak experience, ‘2’ = good experience, ‘3’ = full experience



Figure 02

[Common.Links.ClickHereToDownloadHighResolutionImage](#)





Figure 03  
[Common.Links.ClickHereToDownloadHighResolutionImage](#)





Figure 05  
[Common.Links.ClickHereToDownloadHighResolutionImage](#)





Figure 06

[Common.Links.ClickHereToDownloadHighResolutionImage](#)



Figure 07  
[Common.Links.ClickHereToDownloadHighResolutionImage](#)

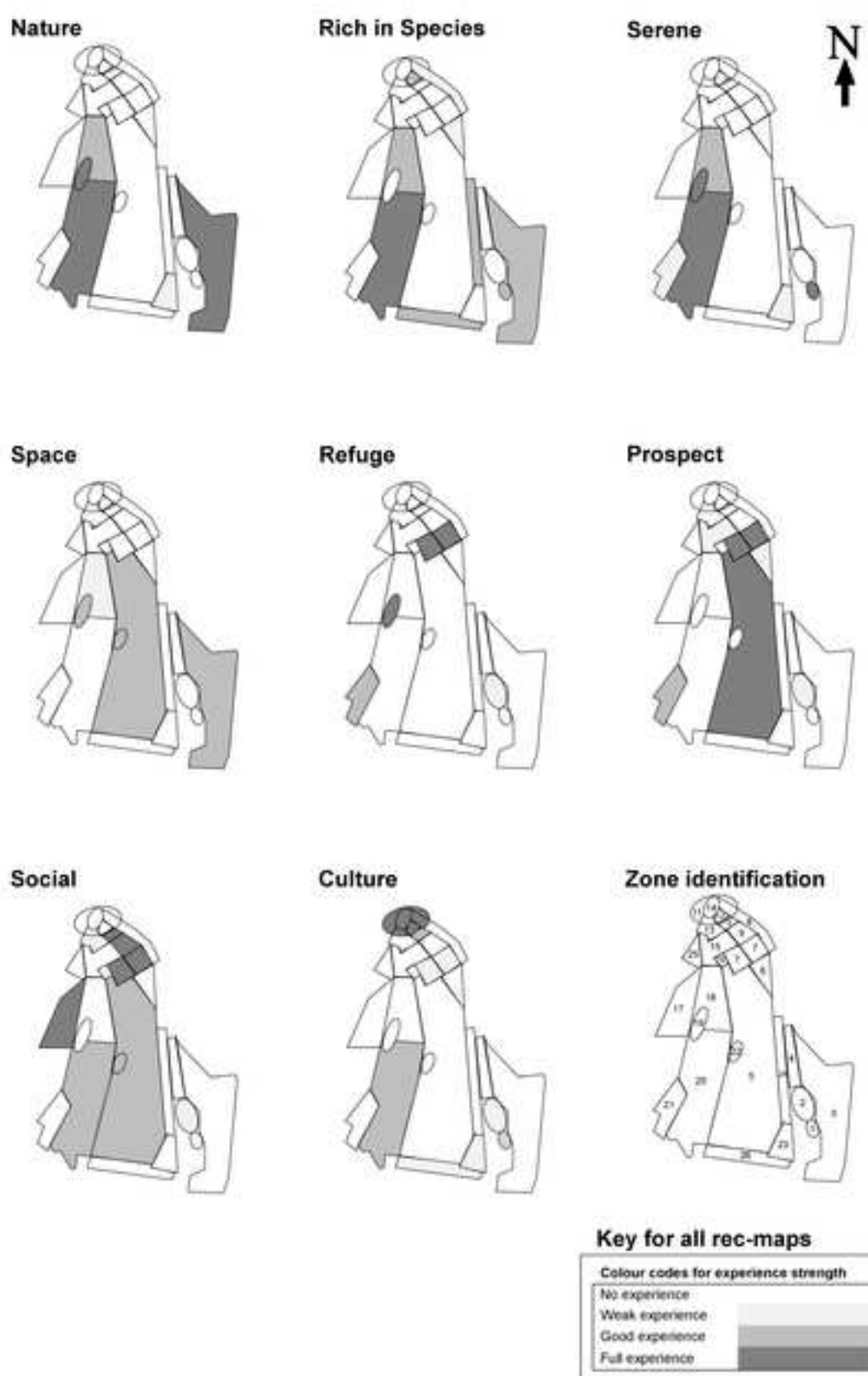




Figure 1  
[Common.Links.ClickHereToDownloadHighResolutionImage](#)





Figure 4  
[Common.Links.ClickHereToDownloadHighResolutionImage](#)

