



Contents lists available at ScienceDirect

Urban Forestry & Urban Greening

journal homepage: www.elsevier.com/locate/ufug



The impact of small-scale design interventions on the behaviour patterns of the users of an urban wasteland

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ARTICLE INFO

Keywords:

Behaviour mapping
Spatial change
Tallinn waterfront
Urban acupuncture
Urban derelict places

ABSTRACT

Urban derelict space can form a valuable complementary element to the formal green spaces of a city: wastelands are often biologically diverse and their unregulated status can provoke innovative spatial activities by a wide range of users. Using the case of an urban brownfield in Tallinn, Estonia, this paper examines how such a space is used and evaluates the magnitude of the impact of minor design interventions – so-called urban acupuncture – on the activities carried out by the users. The study used field observations and behaviour mapping to compare the spatial pattern of the users before and after small design interventions. Although there was widespread use beforehand there was both an increase in use and a different pattern afterwards, which was clearly detectable from the composite behaviour maps of both arrangements, where users follow the properties of the particular environment. The small improvements tested showed the largest effect on the female and the older user groups, raising the number of overall visits and increasing the occurrence of active behaviour almost five times. The research demonstrates that small, inexpensive and possibly temporary interventions can have a major positive effect.

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Introduction

Mixed feelings occur concerning urban derelict places. To some people, they seem ugly and offensive (Armstrong, 2006), crying out to be wiped away and redeveloped. For others, the ruinous character may provoke the sense of an overwhelming sublime wilderness, representing the *absent presences* of the past and telling stories (Edensor, 2008), or as a rich playful environment, evoking a desire to improvise (Edensor, 2005; Franck and Stevens, 2007; Unt et al., 2013). The question of how different people react to and find different values in such spaces is of interest when discussions over their future use arise, but in-depth documentation of the uses of derelict sites and their evolution over time often remains absent.

The main aim of this paper is to demonstrate not only the vitality and richness of urban derelict places, by introducing an urban wasteland in Tallinn, Estonia, but to explore the role of small-scale physical design interventions in enriching such an environment and also the effect these changes have on the behaviour of green space users. Unregulated space can successfully function as an attractive outdoor environment and green space does not need to be built to be a park or a playground. The paper compares user behaviour patterns before and after minor design interventions, in

order to study the influence of very small changes on the usability of the place and also their possible wider impact.

In many recent examples of brownfield and other derelict urban sites, especially following the economic crisis of recent years, it is often the case that large-scale interventions are infrequent or unlikely to occur due to financial or legal constraints. Occasionally, in derelict places small changes are made either formally or informally which can have an influence on user behaviour – positively or negatively – out of all proportion to their scale and expense. *Urban acupuncture* is a term which can be traced back to the Finnish urbanist Marco Casagrande's (Casagrande, 2010) and the urban revivalist architect Jamie Lerner's ideas (Tortosa et al., 2010). It is the practice of making small targeted interventions – like that of the acupuncturist needle – in order to solve a specific larger problem. According to this idea, a city can be viewed as a living organism containing certain fulcrum points or places of high potential that begin to act as catalysts in the processes that go on to affect the entire city. In the urban acupuncture approach, the attention paid towards certain hotspots slowly starts driving the overall urban development. Here the main role is carried by local potentialities and no dramatic spatial change is necessary: typical examples include community-led activities with small budgets, often temporary in nature. It is not often possible, however, to test the real effect on a community of users of a space by conducting before and after studies. The fishing harbour site in Tallinn and its acupuncture provided an opportunity to test this effect.

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Use of observational tools for understanding environment–behaviour relationships

Various studies have been conducted covering the aspects of environment–behaviour relationships, such as the effect of the environment on the behaviour of children (Kytä, 2002, 2003), the connections between the positive effect of natural environments on children's mental health (Roe, 2008; Roe and Aspinall, 2011), teenagers' utilisation of urban public space (Travlou, 2004, 2007) and the influence of the elements of public parks in the spatial distribution of individuals and groups (Goličnik and Ward Thompson, 2010). Roe and Aspinall (2011) have emphasised the relevance of people's emotional reaction towards landscapes, or, as Gibson (1986) has termed it, *affective space*.

Behaviour mapping is one of the tools which have received recent attention amongst a range of observation techniques used in landscape architecture, urban design, planning and other public or open space-related research. The task of any designer is to develop solutions that are aesthetically pleasing, practically useful and well-functioning (Lawson, 2005). As outdoor space is a "living environment", observing how people use it is an efficient way of assessing the constant adaptation between people and space. Gathering empirical data by observational methods in the field provides a subject for design and also enables questions for research to be defined (Goličnik and Ward Thompson, 2010). Furthermore, as to Hofmann et al. (2012) claim, user preference should be a key criterion in the design of open spaces in order to assure that the design matches with people's expectations for the spaces. Urban derelict places are no exception – users can be strongly attached to particular unregulated settings and current user behaviour may suggest functions and properties worth keeping, adding to or avoiding when regeneration is considered.

According to Cooper Marcus et al. (1998), there was no clear tradition of observation and research on public open space use before the early 1970s. Since then, questionnaires and surveys have been conducted in order to find out the actual use patterns of parks. Shortly after that, during late 1970s and early 1980s specific park-related themes began to be studied in detail, e.g. the impact of certain types of vegetation in parks and reasons and effects of vandalism on public places. "The direct participation of local residents, together with systematically recorded behavioural data," Cooper Marcus et al. (1998, p. 88) claim, "is seen as the best way to obtain credible data for use in park design. Collecting information about how existing layouts function is vital for making the right decisions and also for avoiding mistakes."

The essence of behaviour mapping is not to reveal a complete range of user preferences in outdoor spaces, but to reflect upon the effects of a certain chosen setting. Studies that concern user preferences in open space are often conducted by presenting photographs for respondents to rate, sort or describe (see e.g. Kaplan, 2001; Hofmann et al., 2012; Nordh and Østby, 2013). Articulating responses to a preselected range of outdoor settings depicted on pictures gives an overview of what the selected respondents prefer, as shown, e.g. in a study by Hofmann et al. (2012) or Nordh and Østby (2013). Responses for these kinds of studies may be limited to their remoteness from actual environments and may be dictated by how and what is shown on the photographs. Behaviour mapping is one of the tools that studies people in their immediate physical environments.

Urban acupuncture

This paper examines a derelict, unregulated open space in order to grasp how people react to small-scale spatial alterations. It

was hypothesised prior to the experiment that using minor spatial interactions in open space design has a proportionately strong and far-reaching effect on the users. The assumption is based on the concept of urban acupuncture. It is an experimental strategy that has been followed in urban renewal in numerous cases (e.g. New Orleans, Tijuana, Curitiba, Taipei) (Cruz, 2005; Landry, 2005; Casagrande, 2010; Harrison, 2013) and various themes such as transport planning (Stupar and Savcic, 2009), vernacular urban space renewal (Casagrande, 2010), post-disaster regeneration, rehabilitating nomadic architecture, etc. Despite the applications of the strategy in practice, too little attention has so far been directed towards it by academics.

Urban acupuncture is a bottom-up kind of tactical urbanism that organises local potential to solve site-specific issues. It was developed as a critical reaction towards the more typical large-scale, top down development approach (Casagrande, 2010). This way of thinking is not novel per se, but acts as a guiding concept when looking for realistic and responsible ideas.

Marco Casagrande, an architect and urban innovation instigator has used urban acupuncture as a method in various metropolises in order to seek out their own hidden social values. A lot of cities are gradually changing, mainly through de-industrialisation, but their direction and ideals in urban regeneration do not yet have a clear identity. According to Casagrande, a sort of "street level humanistic energy" (Casagrande, 2010, p. 1) has huge potential to lead the city in its urban ecological awakening. This *third landscape* (Weltman-Aron, 2005) or *third generation city* (Harrison, 2013) is a discourse that builds upon human scale activities happening in places or sites whose status and ownership is unclear or undefined. Where the *first generation city* signifies a moderately urbanised context that respects its constraints and the *second generation city* an overly industrialised urban setting that exploits resources then the third, as Casagrande asserts, is a new sensitive urban layer that is socially and biologically diverse, informal, experimental and sustainable and its interventions are minimal (Casagrande, 2010; Harrison, 2013).

As this third landscape or third generation city follows ecological ideals rather than economic goals, being the "organic ruin of the industrial city" (Harrison, 2013, p. 309, citing Casagrande), the strategy of urban acupuncture offers a corresponding toolkit for accomplishing change. It recycles materials, systems and ideas, using a minimal amount of effort to scale down the input. The effect of applying the strategy may be, conversely, impressive and bold if the pressure points are chosen wisely. The example studied in this paper promised to present similar features. The site appears unclaimed at the moment, lying in ruins, but being intensively used by a diverse group of urban anarchists, *flâneurs* and activists. Also, a series of small spatial changes took place at the site that promised to upgrade the environment. It was thus possible to observe the effect of the acupuncture by conducting a before and after survey of the users' behaviour.

Research aims and objectives

The research applied a version of fieldwork and data analysis that can easily be used in planning and design practice in order to gain insight into how the behaviour patterns of open space users and spatial properties are interdependent and how they change as a result of small alterations in the physical and perceptual character of a space.

The study presented here aims to answer the following research questions: firstly, what kinds of activities are users engaged in at an unregulated urban green space? And secondly, to what extent do minor design interventions affect the pre-existing functional spatial choices of users?

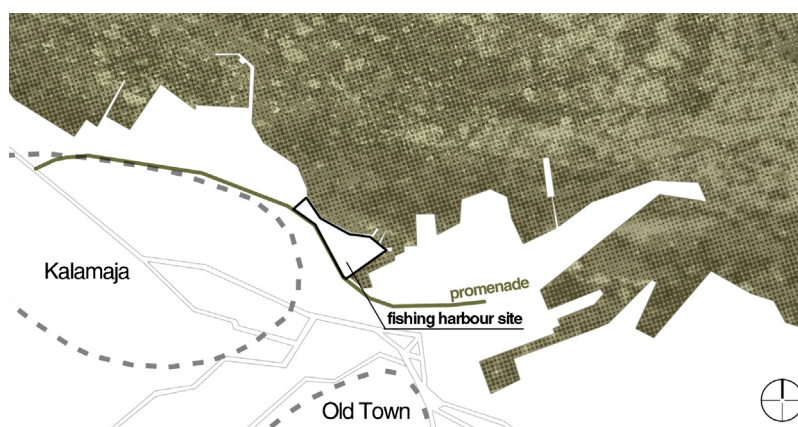


Fig. 1. The location of the study site on the front between the historical Tallinn city districts and the gulf of Finland. A new residential district is planned between the sea and the temporary promenade.

Materials and methods

Selection of the site

The study site is a relatively compact territory of approximately 5 ha., enclosed by natural borders. It is a privately owned but publicly used urban space that has neither its former nor any current official function but lies in reserve with the expectation of future redevelopment.

The study site, the old fishing harbour, was selected because of its central location, its access to the sea, its relative isolation from neighbouring areas (see Figs. 1–3), its abandoned character and diverse spontaneous vegetation (see Figs. 2 and 3). The site has clearly identifiable natural borders: the sea on one side and an edge defined by higher ground on the other. It is also relatively small in size, so that it is possible to perceive it as a single specific place and to cover the site with ease when mapping its users, who enter and exit from rather narrow entranceways on either side of the site.

The site is a post-Soviet era industrial area on the Tallinn waterfront that historically served as the city's fishing harbour. Formerly, the site was controlled by the Soviet military and was re-opened for public use at the beginning of the 1990s after the re-establishment of Estonia's independence. At present the site lies in reserve, as the currently proposed redevelopment plans have not succeeded in satisfying all the various interest groups – the proposals for the detailed plan have repeatedly been rejected – so it remains derelict. The site has stayed virtually untouched for two decades – all the

original built structures were demolished quite some time ago in order to avoid maintenance and security costs. The owners of the site use part of it for storing soil for future landfills; the rest is either gradually disintegrating or is being colonised by vegetation. There is some minimal maintenance work carried out: litter is regularly collected and some of the bushes were cut down selectively during the observation period.

The suitability of the area as an object for research emerged from its prominence in ongoing public and professional discussions. The site is significant for the development of the capital, being surrounded by objects of interest. These include the old Patarei Prison and the city's redundant power station building (now the Tallinn Creative Hub, *Kultuurikatel*) which are centres for alternative culture; the old Seaplane Hangars hosting a contemporary and award-winning Maritime Museum; the iconic building of the *Linnahall* culture and sports arena, built for the sailing events at the 1980 Moscow Olympics and the planned and possibly never-to-be constructed administrative building of the Tallinn City Government which was a winning competition entry by Bjarke Ingels Group; all these elements act as points connected by the planned 27 km long seaside promenade.

The planned promenade runs across the fishing harbour site. In 2011 Tallinn was one of the European Capitals of Culture and the old railway line that crosses the study site was reconstructed as a temporary promenade, the so-called Kilometre of Culture that connected several important cultural nodes along its route (see Figs. 1 and 4). The general theme of the Cultural Capital was "Stories of the Seashore", aiming to re-direct attention to Tallinn's neglected connection with the Baltic Sea and the values and opportunities of the city's waterfront. Whether the promenade will remain in its current temporary location or be rerouted closer to the shoreline remains unclear.

The Capital of Culture programme included a series of temporary events carried out in different public spaces. A number of small projects, in addition to the Kilometre of Culture, were constructed at the study site as follows. The leaning concrete piers of the old harbour basin were covered with wooden decking to enable informal use and the shoreline (the local informal beach) was complemented by a bench and a changing cabin while two massive chunks of concrete were converted into wooden platforms for sunbathing (see Fig. 5). The dense shrubs between the promenade and the sea were thinned and the understory cleaned to improve visibility. The railway line ballast was surfaced with fine crushed stone, while lighting, benches and litter bins were added along the resulting promenade.

All these elements promised to provide an interesting ground for studying the effect of spatial change on user activity. These small



Fig. 2. An aerial view of the Tallinn site, looking west. Extract from Bing Maps, Microsoft®.



Fig. 3. The Tallinn site is dominated by spontaneous vegetation, with remains of former paths and courtyards around the patches of “wilderness”. Water is accessible along the shoreline, with sand, pebbles, big stones and concrete chunks affording a variation of activities.

interventions can be considered to be forms of *urban acupuncture* that influenced certain spots at one of the current key energetic centres of the capital.

Method

The study presents the findings of behaviour mapping, juxtaposing the usage patterns with the properties of the place, and then comparing the behaviour of the users of the site at different times.

The methodology includes several aspects: background data collection and site survey to set up the experiment, before and after behaviour mapping and subsequent comparative analysis. Notes and photographs covering the characteristics of the study site were collected for the initial site survey. The behaviour mapping method was carried out in 2010 and then again in 2011, on either side of the design interventions, so as to test the before and after situation.

Behaviour mapping was chosen as one of the key methods to collect on-site data. The method is an objective tool to study the interrelations of people's behaviour and the environment (see e.g. Cosco et al., 2010; Goličnik and Ward Thompson, 2010); it involves observing different actors in their surroundings with the minimal possible intervention (of the observer) and modest input in time and resources. Behaviour mapping juxtaposes subject-related information with the properties of the space, making it possible

to detect very clear interdependences between the two variables. This particular study added the component of time, comparing behaviour maps that were recorded at one specific place but at 20 different points in time over a span of 2 years.

Preparations for fieldwork

Base maps were created by simplifying extracts from digital map bases, in order to accentuate relevant elements and erase the unnecessary features that would complicate observation recording. The fishing harbour, being a wasteland, is shown as a blank area on most available maps and plans, therefore an extract from the orthophoto database was used via the Web Map Server of the Estonian Land Board (*Maa-amet*). The base map was printed in black and white at A4 format, scaled to fit the paper, specifying the character of ground properties (surface materials, water, vegetation) and the location of key elements.

Data collection process

The data collection was carried out over 2 years, between July 2010 and July 2011. The outdoor season at public places in Estonia starts in May, occasionally at the end of April, if temperatures are higher than usual. Starting from that point, restaurants and cafés open their outdoor terraces, as it is warm enough to sit outside. The



Fig. 4. The temporary promenade follows the former industrial railway line of Tallinn. The coarse ground cover is visible on the left, the reconstruction of 2011 is on the right.



Fig. 5. Tallinn 2011 Capital of Culture installation “Kalarand”: temporary beach equipment at the beach. (a) The ruins in 2010, Photo: Teele Pehk; (b) wooden platforms constructed on top of the ruins (installation opening in June 2011, Photo: Reio Avaste); (c) the changing cabin, Photo: Reio Avaste; (d) the bench (installation opening in June 2011, Photo: Teele Pehk).

hottest days can reach $+35^{\circ}\text{C}$ in the summer, but cool down by mid September, when the outdoor season ends. The Estonian climate has also a relatively long autumn with rain and lower temperatures. In the winter temperatures can fall to as low as -25°C and snow dramatically changes both the scene and the usability of a site. The survey thus concentrated mainly on the warmest part of the year when people were most likely to spend their time outdoors.

The days of the observation period April to September were divided into blocks of 2 h between approximately 10 am to 10 pm (the latitude of the site dictates the length of daylight hours – at the height of the summer season it is light for almost 24 h and people may use the site all the time, whereas in the depth of the winter season it is only light between 9 am and 4 pm) and times for field work observation randomly selected from these so as to sample the site over weekdays and weekends and at all times. The site (beyond the new promenade) does not have additional lighting apart from daylight so sampling ceased when the light was inadequate.

The data was collected passively, with the lowest possible degree of interaction with users. The date and time of the observation were recorded, as well as weather conditions (approximate temperature, rainfall, clouds and wind) and special remarks (e.g. impressions, light, sounds) were noted. The observer moved through the site over the duration of a session, mapping the location and type of behaviour of each user of the site at that specific location

and point of time. Behaviour types were generated from pilot observations and also generic types known from previous studies and notes using an abbreviation (e.g. the varieties of walking and sitting) unless the activity was more complex (e.g. eating an apple and throwing the remains in the water while singing), in which case the whole description was written down. The gender and age group of each user was also determined, with possible occasional errors due to distance from the observer. Four different age groups were differentiated: children (boys and girls from aged 3–15), young men/young women (aged 16–35), mature men/mature women (aged 36–59) and older men/older women (aged over 60).

The data collection method also had its limitations. Since the dense vegetation did not allow seeing the entire territory all at once, it was therefore possible that some activities may have remained unnoticed. Firstly because finding a way through the site might miss someone moving after or before the observer or exiting the site before being observed, secondly, the observer being a young female, the dense shrubs were not entered because of perceived safety risks, especially during the first mapping session in 2010 when no thinning had yet been undertaken. Although there were clear signs (e.g. furniture, clothing, litter, smoke, conversation) of users and even residents within the denser parts of the vegetation, they were not mapped unless being clearly identified according to the described criteria of age, gender and activity.

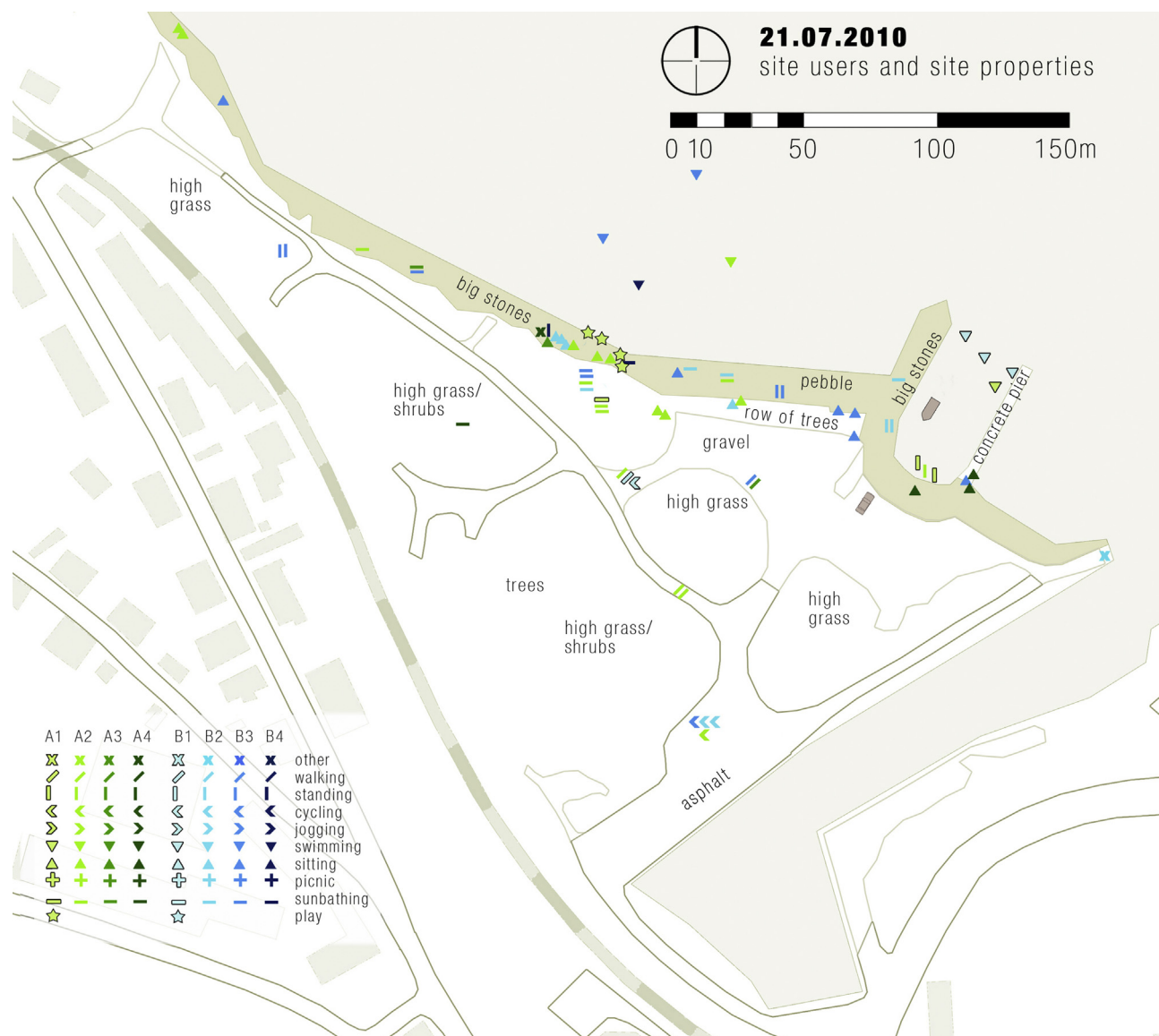


Fig. 6. The users of the site on Wednesday, 21 July 2010, 3:30 pm. It is a very warm cloudless afternoon with some relieving wind. Each icon indicates a user engaged in an activity at the time of the observation. A1: girls; A2: young women; A3: mature women; A4: older women. B1: boys; B2: young men; B3: mature men; B4: older men. The icons are identical on all similar images through the paper.

Preparation and analysis of data

A digital map was created that summarised the fieldwork data using Adobe Photoshop (any kind of software is suitable that enables graphical data to be organised into layers). Gender and age were differentiated by colour, each layer of information specifying the location of all documented individuals of one age group of the same gender for one fieldwork session. It was thus possible to combine layers for comparison, e.g. the occupation of the area before or after the 2011 spatial interventions, or the difference in the overall distribution of men and women. Representative samples were extracted in order to describe the relationship between the properties of the environment and the correspondent behaviour of the users.

The data was analysed using a similar method to that of Goličnik and Ward Thompson (2010), who discussed the usage–spatial relationships on the basis of observations made on a particular day or by combining layers of data into composite maps of several observations at different times of the fieldwork. The digital database of the fishing harbour represents 20 mapping protocols with 135 episodes and was analysed both separately, layer by layer, in order

to discuss daily visits, and as composites for overall spatial pattern analysis.

Results

The results are presented as overlapping layers of the mapping protocols. Certain combinations of mapped users are shown against specific site properties, to demonstrate their interrelationships. In other cases, only site outlines are distinguished where the location of the users or the nature of the activities is more significant. Mapping protocols were combined so as to focus on the before and after impressions of the design interventions or else divided by components (age groups, gender, types of activities) and then combined with the corresponding components of other protocols in order to compare the different groups.

User patterns in 2010

An example extract of a very warm summer day illustrates the patterns of use before the interventions (see Fig. 6). An episode from

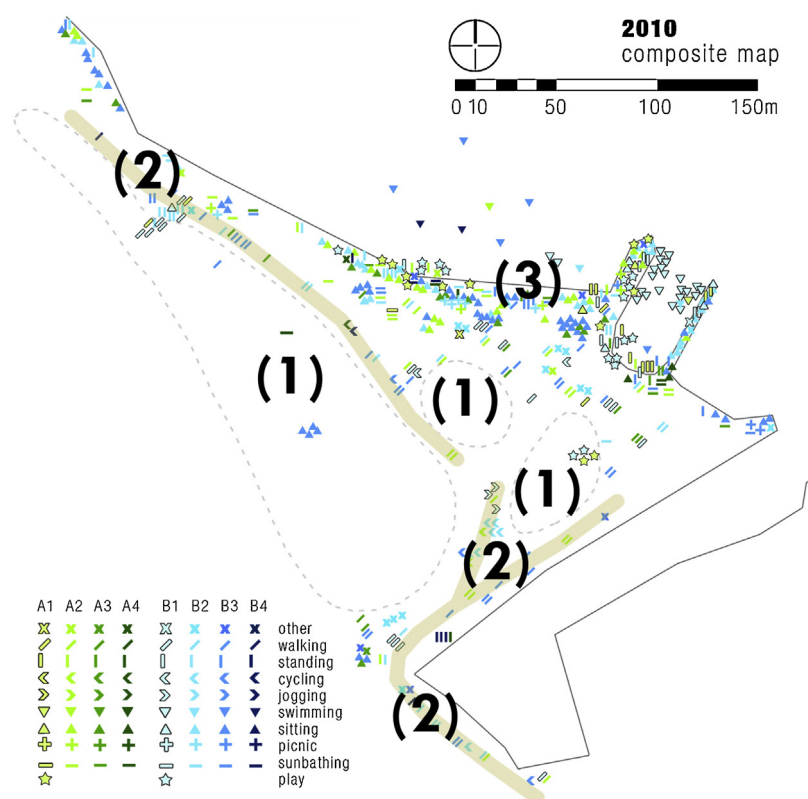


Fig. 7. The spatial pattern of 10 protocols, mapped in 2010. Underused patches (1), lines (2) and the dense cluster (3).

the 21st of July 2010 shows the occupants of the site from 3:30 to 3:50 pm under clear skies with slight wind. 11 people out of the total of 73 are moving through the area, all the rest are occupied in more-or-less longer-term recreational activities. 11 people are in contact with water, ranging from standing in the shallows to diving from the piers. The swimmers ignore the absence of lifeguards and the dubious quality of the water – there is a ferry harbour a few hundred metres to the east so the water is unlikely to be free of pollution. A variety of onshore activities is afforded by the closeness of water: the properties of the environment are more attractive than the desire to keep a minimum distance from other users. A few groups seem not to mind being very close together in order to be able to use the big stones and concrete chunks in the middle section of the shoreline. Also, the part of the shoreline indicated with darker colour in Fig. 6 has been chosen for its visual enclosure: there is a steep edge hiding the occupants from the rest of the area and from passers-by. The same effect of enclosure is found away from the paths, within the tall untamed grasses (12 people sunbathing or sitting). The row of trees casts cooling shade that is favoured by 5 people sitting underneath them. There is a man fishing on the easternmost pier and a small private motorboat is approaching among the swimming boys; a bit later it is towed ashore and taken away by a car waiting on the shore.

The example described above shows a typical pattern of use for the site. Once all 10 episodes of 2010 are combined, a stronger spatial pattern becomes visible. Three major features are clear on the composite map (see Fig. 7). Large parts of the site are hardly used at all (1), the pattern of paths is clearly drawn by movement-related activities (2) and the borderline between land and water is the most densely occupied (3). Along the shoreline, some places were favoured over the others, for example the piers, the water between them, the shallow water and the shore to the west of the western pier and the most north-western corner of the site.

When comparing the overall pattern with the elements of the site (see Fig. 8), it is possible to see their interdependence. Even though seemingly abandoned and under-maintained, the site attracts quite a number of visitors who not only pass through, but clearly choose to spend some time there. The area between where the buildings used to be functions as a web of paths and open spaces for access; the overgrown ruins provide enclosure with lush vegetation; the direct access to water is virtually unavailable elsewhere in central Tallinn. The most varied uses occur when the elements of the space not only allow but also inspire interaction. A choice of both natural and man-made elements is available for free use and interpretation with a lack of visible institutional surveillance and control – the place functions as a “back yard” to the neighbourhood.

User patterns in 2011

There is a dense cluster of users at the sandy beach and on the paths leading towards it and back. There are also a number of people in the water near the beach and less between the piers. A very clear line is depicted by the users of the promenade. The dense vegetation next to the paths is not used at all, despite the shrubs having been thinned. Only some grassy patches overlooking the water are used for sunbathing or simply gathering and chatting.

The differences between the before and after surveys

When comparing 10 mapping protocols each from the summers of 2010 and 2011, the impact of the design interventions becomes evident. The before and after maps (see Fig. 9) show the significant effect of the interventions that were carried out in connection with the Capital of Culture Events. The 10 combined mapping protocols of 2010 show the densest occupation at the middle part of the shoreline (see Fig. 9a). It is not the sandy/pebbly beach that is used the most, the users instead preferring the bigger rocks. In 2011



Fig. 8. A composite map of 10 protocols of 2010 shown against the actual properties of the site. The map illustrates the spatial distribution of users. Single activity types, gender and age groups of the users are irrelevant in this image and are therefore not explained in a legend. Image based on an extract from the orthophoto database via the Web Map Server of the Estonian Land Board.

the temporary promenade is the main attraction. The route also existed in 2010, but it was covered with rather coarse ballast that was difficult to walk on. It was also poorly visible, being squeezed between the back fences of neighbouring houses or industrial buildings and thick unmaintained shrubs. In 2011 the official promenade was built and the vegetation was tamed, resulting in its remarkable popularity among site users and passers-by (see Fig. 9b).

On the 2011 map a denser pattern is also visible by the beach equipment and on the path between the beach and the southern

entrance of the site. Here, both the spatial improvements and the signs of safety and comfort that these improvements carry show some change in the pattern. The new bench, wooden platforms, rubbish bin and changing cabin functioned as easily understandable signs indicating that sunbathing is accepted and encouraged. The physical elements enabled more people to stop and once the environment was experienced for the first time, there was a reason to return and/or suggest them to acquaintances, so increasing the total numbers of users.



Fig. 9. The comparison of spatial user patterns before and after the 2011 interventions. Both graphs combine 10 mapping protocols.



Fig. 10. The comparative distribution of female users in 2010 and 2011.

Variation among gender and age groups

All the small interventions of 2011 improved the usability and the popularity of the place among women, showing a remarkable 2.2 times increase in the numbers of female users (144 in 2010, Fig. 10a, 317 in 2011, Fig. 10b). The new beach demonstrated the densest use (see Fig. 10b), while a trail of users from the southern entrance towards the beach can also be seen on the female users' map.

No such major difference in the pattern and number of male visitors can be detected either on the beach (unlike the female occupants) or through the entire space (see Fig. 11a and b). It is the promenade that appears to improve the usability of the site

for men, showing an increase in jogging and cycling – so more active uses, as opposed to walking when comparing with the female users' behaviour. A second smaller change can be observed in the youngest male user group. The 2010 map shows a number of boys swimming between the two piers on the beach. The 2011 pattern is not as dense. This is partly due to mapping the same group of children on several consecutive visits without the overall number of children actually being much larger than in 2011.

The overall number of the youngest user group (children aged 3–15) has hardly changed after the interventions. When looking at the oldest users (aged 60+) we see an almost tripling number of visits after the interventions (21 people in 2010 and 61 in 2011,

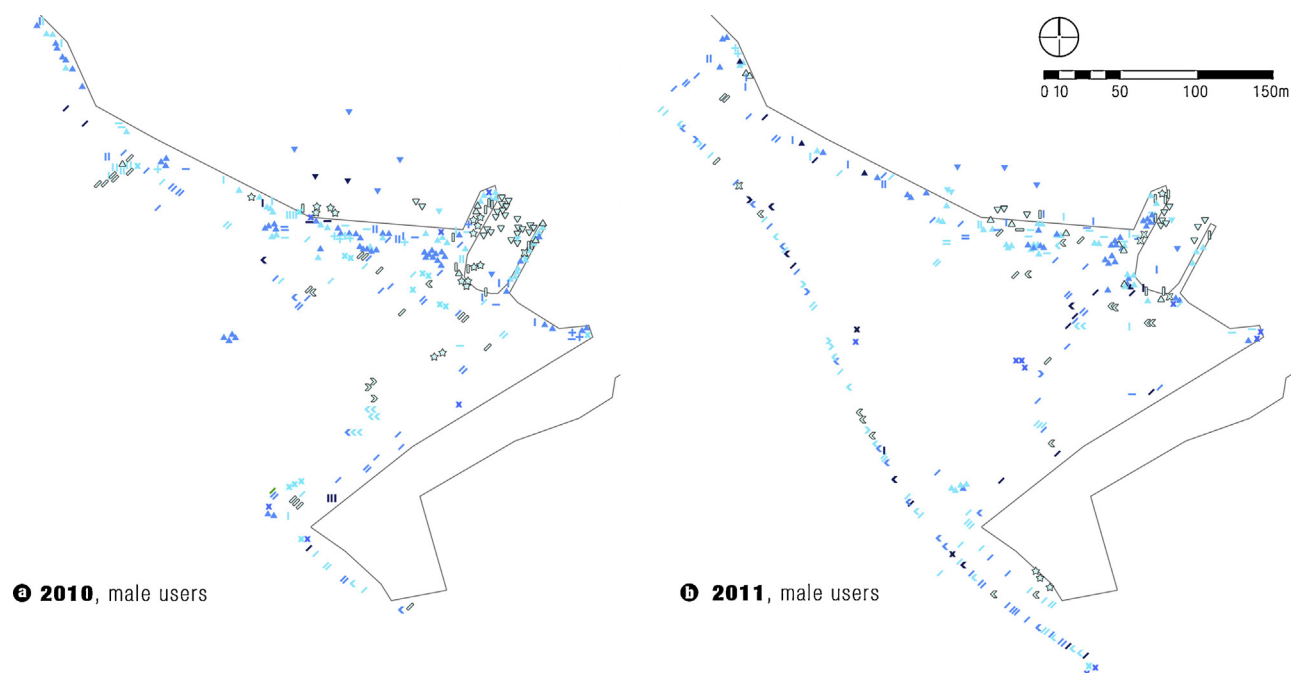


Fig. 11. The comparison in the distribution and occupation of male users before and after the interventions.

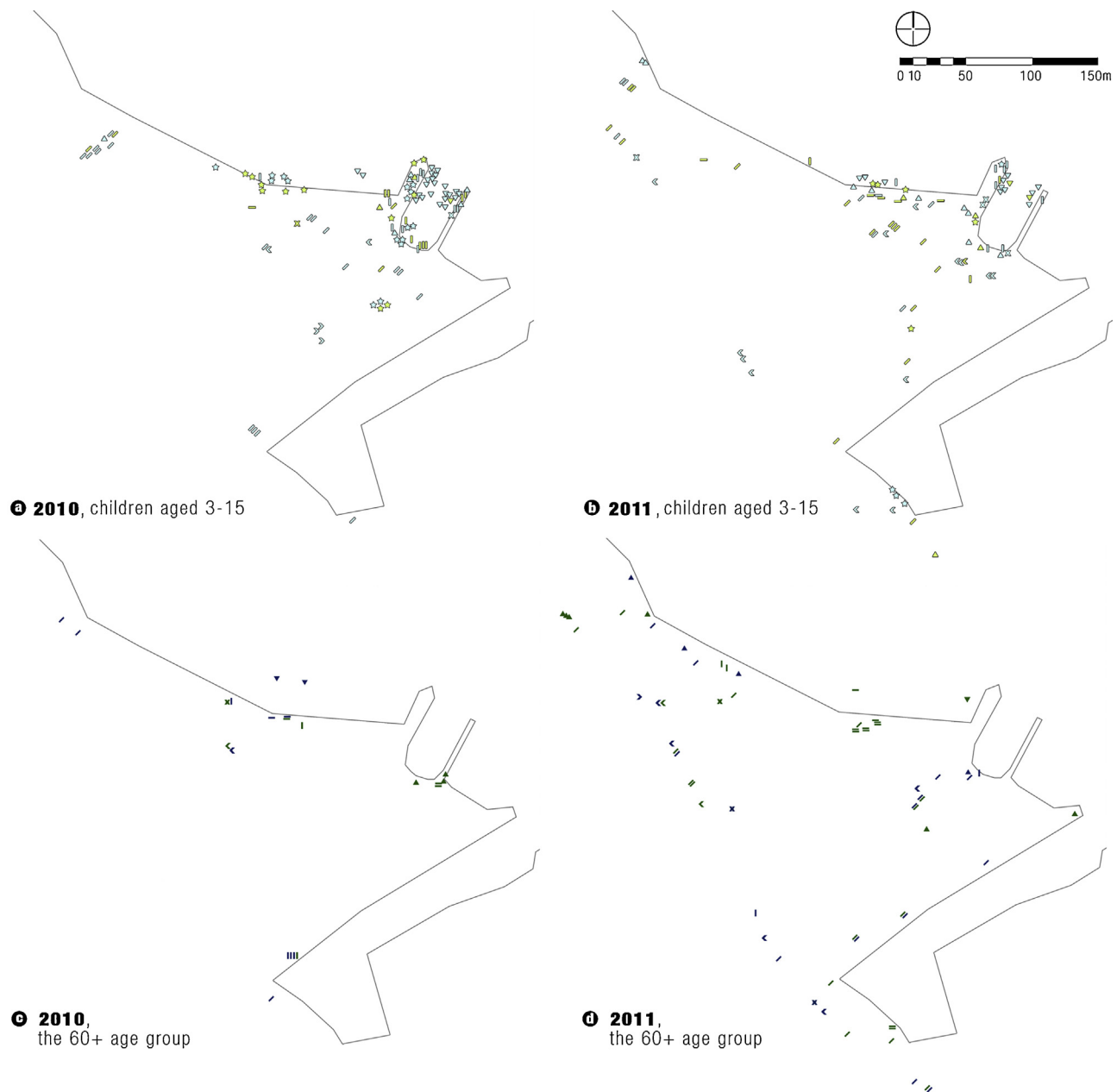


Fig. 12. A comparison in the effects of the spatial changes on the youngest and the eldest user group.

see Fig. 12). As interviews were not conducted nor questionnaires handed out in the framework of the study, the reasons for these dynamics can only be assumed based on observations. The above-mentioned findings refer to the presence of clearly identifiable park elements and good accessibility being more important to the older user group than to young people. The small interventions affected both the frequency and the active-passive balance of senior activities: the spatial improvements attracted and afforded visits, it was easier to approach the site and take a seat if needed. In this example the promenade also functions as a tourist attraction presenting the waterfront and leading towards the new Maritime Museum, thus raising the number of retired visitors.

Another pattern to compare is the balance between active and passive uses. The protocols differentiate ten different types of activities: walking, jogging, cycling, swimming, play, having a picnic, sitting, standing, sunbathing and “other” – the first five on the list

can be classified as active and the second four as passive uses. The “others” consist of activities that did not occur frequently enough to be a separate category themselves, such as fishing, putting up a tent, practicing martial arts, washing something in the sea, dancing or unloading a car. These infrequent activities combined together thus fit neither the active, nor the passive category, because they included both active and passive uses.

The pattern of passive uses among male visitors does not differ significantly between 2010 and 2011 (see Fig. 13a–d), whereas the temporary promenade makes a strong impact on active use. When comparing the balance between active and passive uses, the spatial intervention shows a major shift in favour of active engagement.

A different pattern occurs among female users. The number of women on the site is much lower in 2010, when comparing with the male users (respectively see Figs. 13 and 14). The spatial interventions of 2011 increase the number of female users in total, while

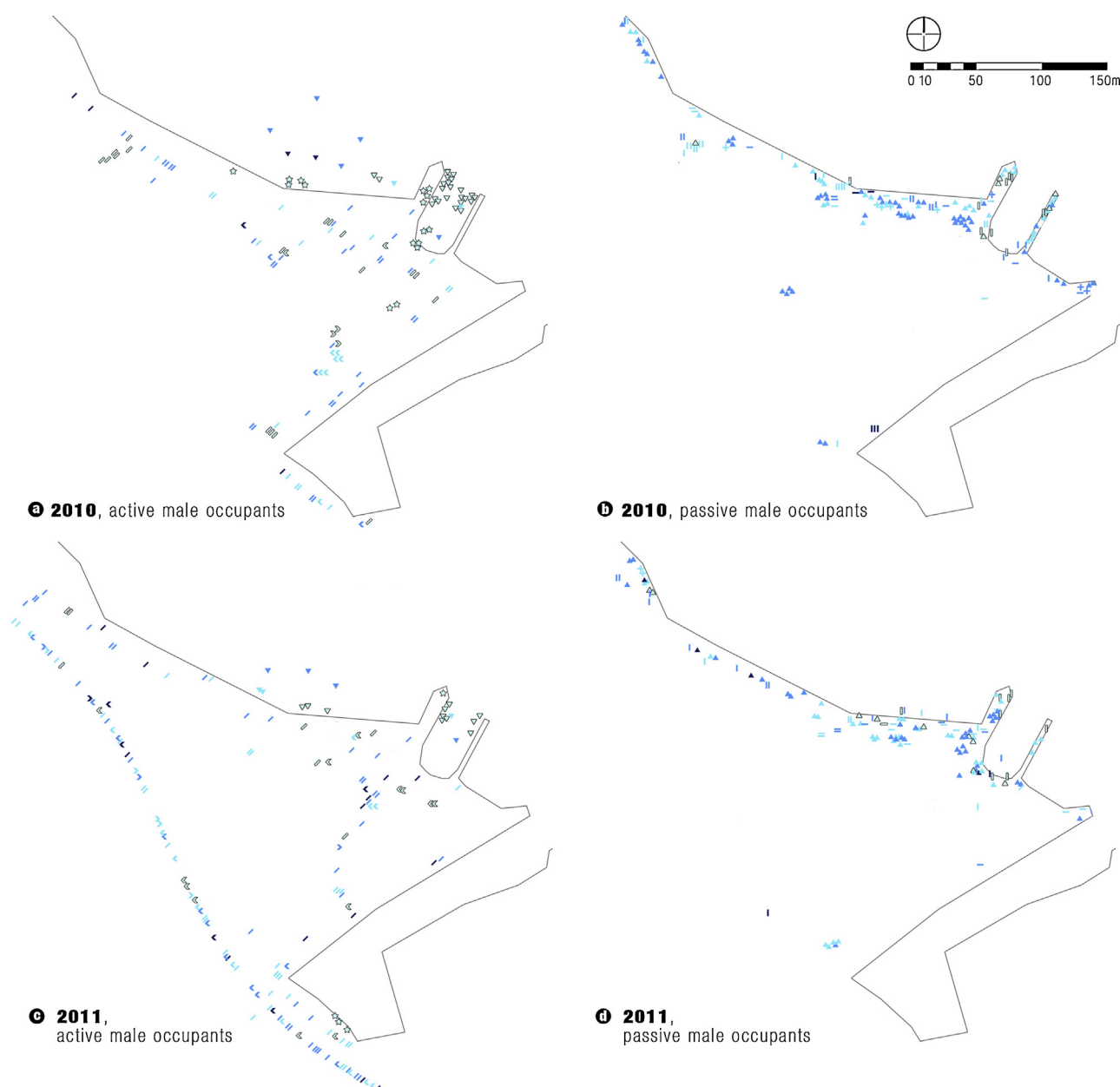


Fig. 13. A comparison of active and passive activities among men in both years of observation. The images combine the entire male user group, including all ages.

the number of active female users rises almost five times. The same dynamics occur in the senior user group. When before the interventions there were twice as many passive senior visitors as there were active ones, then afterwards a five times increase occurred among active senior visitors.

Discussion

A study by Nordh and Østby (2013) that looked for the most preferable small urban green space elements concluded that a good small urban park should introduce plenty of natural components accompanied with seating possibilities and seclusion from its surroundings. The natural settings and the perceived remoteness from the neighbouring urban environment are parameters that also characterise the unregulated space studied in this paper. There was an average of 44 people counted at the site through all the 20 observation sessions, with 138 as the maximum. At such a small

space these numbers indicate that this particular environment is a favoured green space. The visitors enjoy properties that differ from those of a more “official” public park. A few formal elements were added in 2011 without interfering much with the entire territory, resulting in a clear reaction by the users.

User engagement at an unregulated place

In the broadest sense the fishing harbour site acts as a vital outdoor space within its surroundings. Cooper Marcus et al. claim that traditional institutionally organised parks may not cater to the needs of some parts of the community compared with green spaces with a higher spatial and ecological (and thus social) diversity. They emphasise that certain neighbourhoods need flexible outdoor spaces for specific activities, like active street life, social networking or even washing and displaying cars. Similar activities, they warn, should not be “designed out”, but should rather be encouraged and legitimised (Cooper Marcus et al., 1998, p. 86).

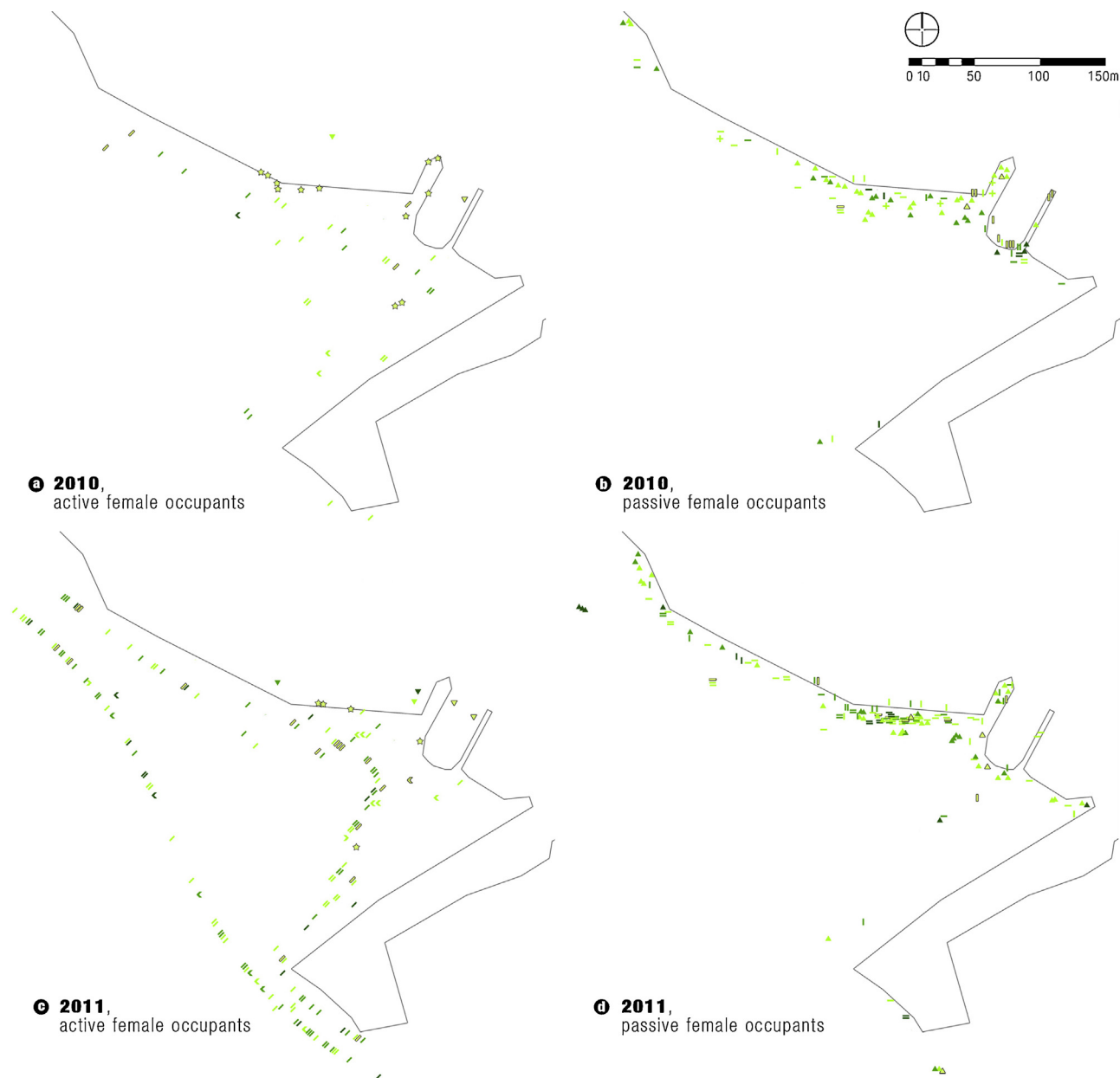


Fig. 14. A comparison of active and passive activities among women. The images combine the entire female user group, including all ages.

The results of the study indicate that this kind of flexible space attracts many visitors and clearly not only young representatives of alternative subcultures. However, the whole space is not being used with equal intensity. When juxtaposing the user pattern with the physical properties of the site, the main environment–behaviour relationships arise and become visible. When looking at the 2010 observation results, the unused sections consist of either dense enclosing vegetation or the apparently “dead” ground of the deposited landfill soil (see Fig. 8). These parts of the area seem to be avoided due to their discouraging appearance (see e.g. Edensor, 2005; Armstrong, 2006; Franck and Stevens, 2007) and the perceivable existence of the seasonal inhabitants and visible traces of inhabited places such as bivouacs (see Fig. 15). The stored heaps of soil give an impression of contaminated debris and are not even used by children as a play environment. Similarly, the users distrust the enclosed edge of the site (the former railway) throughout the 2010 observation.

The open part of the landscape with grass, pebbles, asphalt and single trees and bushes seems to be favoured over the potential of the dense shrubbery. The passers-by are one of the spatially restricted user groups, who only move through the site without interfering with the ground away from the more or less paved paths. Necessary everyday activities occur when space is physically passable; the weather conditions or the quality of the environment play no significant role. Gehl classifies walking as the main representative of the most common everyday activities (Gehl, 1987). When the overall most popular activity in 2010 was sitting then in 2011 it was replaced with walking – the site has become a more public space-like environment. The fishing harbour is not a shortcut between destinations – many alternatives exist that bypass the site. Therefore the landscape has extra qualities when compared to the streets nearby and especially the site’s own shortcut across the abandoned railway line that was virtually unused before the promenade was constructed. After the intervention the path became passable due



Fig. 15. Signs of longer visits: clothes, mattresses, furniture.

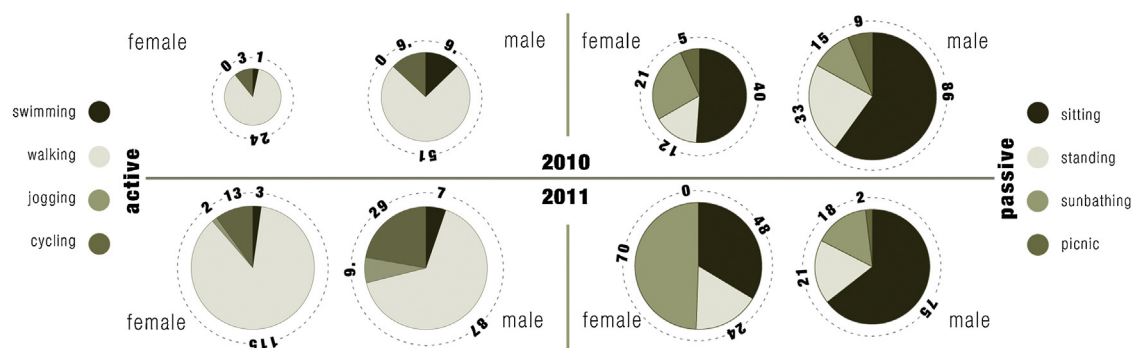


Fig. 16. A comparison of active and passive activities before and after the changes.

to the improvement of the surface conditions and acceptable due to better visibility.

Other activities apart from necessary ones are purely optional and depend strongly on the properties of the environment. They are taken up when weather conditions are suitable, when the setting provokes us to interact or suggests certain activities or simply when we feel like it. The activities can be very playful when the environment affords a rich variety of possibilities that challenge the user. The longer-term users of the space gather next to the edge of the territory along the shore. Goličnik and Ward Thompson as well as Bell have demonstrated the “edge effect” in the use of public parks. According to their observations, people tend to prefer distinct edges for optional and recreational activities, for example slopes, rows of trees or the perimeters of vegetation groups (Bell, 2008; Goličnik and Ward Thompson, 2010). The study site presents numerous edges that the users focus on: the line between land and water, the slope between the main territory and the shore, the concrete and stone fortifications, rows of stones, the piers, strips of grass and a row of trees. All of these elements are distributed along the northern fringe of the site, and so are the great majority of users (see e.g. Figs. 2 and 8).

Gendered aspects of acupuncture

The most evident effect on user behaviour results from the small design interventions of 2011. The nature of the activities was different after the changes. The users were generally more active than a year before – a 1.9 times increase among men and a 4.7 times increase among women engaged in active pursuits (see Figs. 16 and 17) – yet the total number of long-time visitors who use the place for the longest time (passive activities among both gender groups combined) has remained almost the same – 221 in 2010 and 258 in 2011. The introduced element of the promenade appears to have particularly encouraged the male user group to engage in aerobic activities in 2011 (jogging, cycling, see Fig. 12) – an

aspect that has a direct impact on men’s health in general. A lack of physical activity is one of the causes in the risk for cardiovascular diseases, the mortality rate of which for Estonian men is among the highest in the world (White and Holmes, 2006). While in the female user group both the active and passive user numbers have risen, the male passive user group has decreased (see Figs. 12 and 13).

There was a decrease in the miscellaneous section of male activities post acupuncture (see Fig. 17). It remains unclear and can merely be surmised as to why activities such as fishing and camping

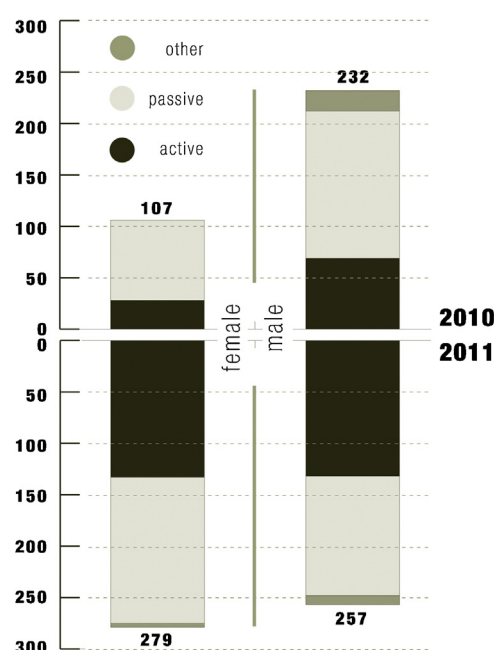


Fig. 17. The comparison of the numbers of visitors in 2010 and 2011.

out appeared less. The more transparent vegetation has minimised the possibilities for undisturbed overnight stays and associated activities, such as cooking and doing laundry. Additionally, the increased popularity of the place means that it may have become unsuitable for activities more on the edges of normal acceptability, such as target shooting.

The significant rise in the number of active female visitors (see Figs. 16 and 17) is probably the most interesting result of the study. Cooper Marcus et al. (1998) have claimed that women tend to make up a minority of park users because of their lack of feeling safe. In this case, after the fishing harbour gained popularity due to the few minor spatial changes, the safety concerns of women appear to be largely resolved. The new transparency of the place and the presence of more seeing eyes may be one of the factors leading to the dramatic increase in the number of female users. Additionally, the composite maps show the beach as being much more popular than before the interventions (see Fig. 10), although sunbathing was not the activity with the highest frequency. Instead, it was either walking along the promenade or to and from the beach, often with a friend or family member, thus raising the number overall (active) visits. The nature of the chosen passive observation method was unfortunately unable to uncover the actual motivation behind the spatial preferences.

Conclusions

Urban dereliction is one of the key issues in contemporary architectural, urbanism and planning discussions. Post-industrial, post-war and post-Soviet landscapes are being redeveloped into new arrangements with various degrees of change: ranging from infilling existing structures with new functions to obliterating all former structures and memories and replacing them by completely new ones.

Urban derelict sites can be an attractive and valued environment for various types of users – children, the elderly, young mothers, neighbourhood residents and the homeless to name but some categories of user. The results of the case study presented here demonstrate the value of the site despite its derelict state and answer the first question raised at the beginning of the paper, asking about the range of activities that occur in an unregulated green space.

The fishing harbour site is a central green open space with high recreational values: the vegetation, the quiet surroundings and proximity to the sea being some of these. Inserting a few pieces of equipment such as benches, a changing cabin and taming the urban wilderness very slightly seems to lead to a significantly increased number of users than before these insertions were made. Therefore it is possible to claim that the spatial interventions of urban acupuncture have increased both the time people spend outdoors and also the types of activities they indulge in while being outside.

The experiment in *urban acupuncture* does seem to show the wide-reaching impact of minor interventions. One of the aims of the 2011 Capital of Culture events was to draw attention to the seaside – an objective that also appears in various other city-wide development strategies. In this case the small projects, events and installations went beyond merely a nodal effect. Affecting the local “pressure points” resulted in a sharper focus towards Tallinn waterfront issues such as land ownership, conflicting redevelopment plans, abandoned sites and buildings and industrial heritage. People, both citizens and tourists, are now more aware of the establishments along the Kilometre of Culture (the Maritime Museum, the Estonian Design House, pop-up events at former industrial buildings and sites etc.) and also with wider problems and processes of the waterfront: the evidence for this being, for instance, the popularity of the temporary promenade among daily users.

Therefore the effect of the “acupuncture” has indeed been major. This is one of the answers to the second research question about the effects the interventions might have on the pre-existing choices of the users.

The findings indicate the connectedness of user activity with the properties of the environment and the stimulating as opposed to intimidating influence of unregulated spaces. While it might generally be assumed that designers rate unregulated open spaces higher than the users (e.g. Hofmann et al., 2012), the example above demonstrates that users in fact do appreciate a green space which is different from a traditional park. As a city's green spaces should aim to fulfil the physical and mental well-being of everyone (Cooper Marcus et al., 1998) this particular unofficial park is at present quite an attractive destination for the neighbourhood residents. This is an aspect worthy of consideration when planning the redevelopment of an urban wasteland or any green space. The familiarity and the direct reaction of users is a valuable source for the planning process. The importance of local knowledge and practices is growing, so also is the need to take it into account. This “puts pressure on planners to find new ways of combining their expertise with the contextual knowing that only residents possess,” (van Herzele and Woerkum, 2008, p. 444) “to create truly relevant, socially inclusive, powerful settings” (Cooper Marcus et al., 1998, p. 87). The direct reaction of the users of the fishing harbour site to the small spatial change can be used to show that in some cases the least possible intervention or rearrangement can raise the quality and hence improve the usability of a space. Real functioning settings and environments are a fundamental source of inspiration and example: a great deal can be learned when observing a space and how people act in it.

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