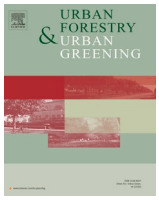
Urban Forestry & Urban Greening 99 (2024) 128422

Contents lists available at ScienceDirect

Urban Forestry & Urban Greening

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



Original article

Values of urban greening – Voices of residents on highly intensive densification (HID) in a Swedish case study

Per G. Berg [a,1], Fredrik Eriksson [a], Tuula Eriksson [a], Madeleine Granvik [b,*], Per Hedfors [b,*]

[a] Swedish University of Agricultural Sciences, Departement of Urban and Rural Development, Unit of Landscape Architecture, Uppsala, Sweden
[b] Uppsala University, Department of Earth Sciences, Uppsala, Sweden

ARTICLE INFO

Keywords:
Functional density
Green infrastructure
Social network
Eriksberg Uppsala
Sweden
Fractal greenery
Case study research

ABSTRACT

Effects of planned *Highly Intensive Densification* (HID) were investigated in southern Eriksberg, a residential area located four km from the city center, mainly built in the 1950s in western Uppsala, Sweden according to the planning ideal Houses-in-Park. Uppsala municipality has proposed a doubling of the number of apartments in the southern part of the residential area, mostly through situating dwellings in-between existing houses and in some of the existing green places and spaces. This way of densifying by inserting an equally large area is a new approach in larger Swedish cities, which we term HID. The research presented in this paper is based on case study methodology. Method triangulation has been used to elucidate the projected consequences on urban greening of the planned HID-process in southern Eriksberg. We have analysed the development plan of Eriksberg and measurable effects but also inventoried attitudes and experiences among residents. The document study showed that an implementation of the HID plan will transform the original concept Houses-in-Park into a compact design with significant smaller green spaces in between the houses. The main result showed that most of the respondents had in general strong opinions and feelings regarding the planned loss of green structure. The courtyard green, the district green and the entrance green were highly valued by the respondents. Further on it was clear that a majority were concerned about the residential area losing its original character, planned according to the idea, Houses-in-Park.

1. Introduction

Densification is a current common planning strategy for re-building Swedish cities with the main aim to become more energy efficient, public space intensive and active transport-oriented settlements, with presumed shorter distances between citizens, services, and culture (Uppsala Municipality, 2017). Two characteristics have imprinted the trend of densification in Sweden since it started in the 1990s, to present days. The first is the slowly incremental scale of densification that can be seen as a response to the governmental deregulation of the housing market from the beginning of the 1990s (Björk et al. 2012). A special manifestation of this development is the increase in combined housing heights (vertical densification) and a packing of the interior of the city and its suburbs with houses tightly together (horizontal densification) (Berg and Granvik, 2018; Berg, 2009). The second characteristic of the densification trend is the introduction of massive dwelling construction inside existing housing areas. Whole new districts are now built within existing urban districts – we call it highly intensive densification (HID), sometimes also described as invasive densification. Little has been done to critically investigate the full effects of progressively more intense densification in general, and regarding effects of new HID projects. A growing number of researchers, planning practitioners, and also authorities (*e.g.* Swedish National Board of Housing, Building and Planning) question if such densification really can support a sustainable urban development or even maintain sustainable communities (Berghauser et al. 2020; Boverket, 2016; Berg et al. 2012; Roseland, 2012; Dempsey et al. 2012; Berg et al. 2010; Berg, 2004). PIanning researchers and practitioners have thus started to question if densification is a sound development in a mental health and well-being perspective (Alfvén, 2016; Gehl, 2010; Evans et al., 2003; Rådberg, 1988). Dempsey et al. (2012) stress the issue of what they call the "crowding effect". Are dwellers becoming stressed by physically and socially densified living environments? As a study by Berghauser et al. (2020) shows that, densification in contemporary planning research is often shown to be

* Corresponding authors.
E-mail addresses: Madeleine.Granvik@balticuniv.uu.se (M. Granvik), perhedfors@gmail.com (P. Hedfors).
[1] **posthumous publication**

https://doi.org/10.1016/j.ufug.2024.128422
Received 9 March 2023; Received in revised form 12 May 2024; Accepted 25 June 2024
Available online 2 July 2024

problematic in several ways related to risk of losing greenery and its aesthetic qualities, health aspects and social networking.

Already in 1990, the Swedish Environmental Protection Agency stated in one of its reports on the urban air that the increasing traffic situation and densification adversely affect people's health and the living environment (SEPA, 1990). Despite this, densification has increased significantly in recent decades in many of Sweden's larger towns at the expense of, among other things, reduced access to green spaces and natural areas. This is because the new houses often are built on open space in the central city, which often consists of attractive green spaces and natural areas. In today's society and busy urban environments, it is important for people to have access to outdoor activities and outdoor recreation as well as nature experiences (Haaland and Konijnendijk van den Bosch, 2015). Other researchers have also shown similar results and that the nature of the city contains many important experiential values for the users (Berglund, 1996). Another researcher who already in the 70 s studied attractive outdoor environments in the city stated that the environments that were appreciated by people often had natural values at the same time as they were exciting, attractive, easily accessible and had a human scale (Gehl, 1971). Other research have described that the residential yard can be experienced and used by dwellers as an extended living room and as a place for play, social activities and meetings as well as to get in touch with nature (Kristensson, 2003).

In our research we have identified a knowledge gap concerning the comprehensive role of green structure of different scales in the context of HID projects from the perspectives of the users. The research presented in this paper is based on a case study in the residential area southern Eriksberg which was built in the 1950s according to an urban planning ideal that sought to get away from overcrowding through airy and green solutions (see example of existing courtyard in Fig. 1). In the present, a complete opposite development plan is proposed according to HID in southern Eriksberg (see example of planned densification of the same courtyard in Fig. 2). The aim of the study was to investigate the effects on green structures in different scales out from the planned Highly Intensive Densification (HID) in the residential area of southern Eriksberg, according to the development plan of Eriksberg and the residents' opinion.

1.1. Two approaches to density

This paper illustrates the clash between two approaches to urban development and density: Houses-in-Park vs. compact city. The first approach is represented by the original plan and outline of Eriksbergs green-built structure, with roots from the knowledge, ideals and norms developed just before, during and after WWII, *i.a.* by Stockholm city gardener Holger Blom (Andersson *et al.,* 2000). This architectural era – both regarding housing and landscape – was also described in detail by

Fig. 1. View from an existing courtyard before densification reported southernmost in Fig. 4, left map. Illustration Christy Hempel.

Fig. 2. Courtyard after densification reported southernmost in Fig. 4, right map. The distance shrinks between facades challenging the urban planning ideal of the 1950's with large lush inner courtyards often facing local woodlands or field patches (Uppsala Municipality, 2017). Illustration Christy Hempel.

architectural historians for Stockholm (*ibid;* Johansson, 1991), Uppsala (Bergold, 1985), and in *Den måttfulla staden* (The Well-Proportioned Town – in Swedish) Boverket (1995) where it says to read:

"*Folkhem houses* (Welfare State Houses – <which is most of the housing blocks in Eriksberg> – authors' comment) in its first built form was considered a distinguished expression of Swedish Built culture. Good examples can be found in <several Swedish Cities> … Uppsala (Yttre Västra Svartbäcken, Tuna Backar, Sala Backe, Johannesbäck, **Eriksberg**)."

The structure of Eriksberg and similar residential housing areas from the 1950s was also analysed by landscape architects (Persson and Persson, 1995) focusing on the "high quality of the outdoor environment". Also, in a more focused *spaciousness perspective,* those housing areas were analysed by landscape architects, (Kristensson, 2003) who concludes:

> "In the functionalistic planning ideals, the hygienic, social, political and urban planning aesthetical objectives were interwoven. It was a green suburbia that was created, outlined from an idea of a calm and healthy living environment, with spacious inner courtyards, playgrounds, and simplistically designed parks."

The governmental authority Statens Planverk (1972) even formulated norms for the outdoor environment. In their report "Bostadens grannskap" (The neighbourhood of the dwelling – in Swedish) an optimal Floor Space Index (FSI) was presented to provide suburban areas with room for play, proximity to schools and service, green areas, recreation, and culture. FSI was set to 1 – *i.e.,* one share of dwelling area for each share of free space outdoors.

The norms that existed during the 1940s and 1950s, and that were established by housing authorities have since then been depreciated or vanished, since they were deemed to limit the contractors' degree of freedom to build denser and higher.

1.2. A second contemporary approach – todays' compact housing

The second era to which we compare the first, is thus, the "compact sustainable city" of today. This modern practice has few theoretical or practical foundations – but is rather referred to as common knowledge in policy documents and construction company brochures. On a global scale *compactness* is a presupposed strategy in the sustainable development goal 11 (UN, 2015) but with little hard evidence of its benefits. The recurring and main reference for the advantages of densification was simple transport studies, such as Newman and Kenworthy, 1992 where density was investigated as a function of gasoline use. In the large EU-project *Ecocities*, the sustainability qualities with a dense city were taken for granted with little evidence, even if the nature of density was

also elaborated (Gaffron et al. 2005) and nuanced. Our main sources of the new paradigm of densification as a vehicle for sustainable urban development, was a compilation of 50 contemporary comprehensive plans in Sweden reported by Haupt et al. (2020). It's still not hard evidence but a strong statement from practical planning, that dense townscapes will probably automatically become more sustainable than sparsely populated ones. At the same time in current society with an increased vulnerability lately according to climate change, green structure, ecosystem services, biological diversity are key elements in mitigation and adaptation. Recently experiences of pandemics have also contributed to highlight the value of green structure for health and recreation. In Sweden, the use of outdoor activities in urban green settings increased significantly during the corona outbreak 2020–2022 (SCB, 2022-04–21)

2. Theory

2.1. The theoretical framework

Our theoretical framework on what is significant for sustainable urban development, is founded in an interdisciplinary tradition within urban planning and landscape architecture (Granvik and Hedfors, 2015) and uses a place paradigm, emphasizing the significance of the local context (Wahlström, 1984; Geddes, 1915). The current and future place properties of southern Eriksberg is therefore of great importance in the analysis of consequences of HID. In this project we define *HID* as a situation when existing townscape areas are densified at a high rate *within* an existing mature residential area. HID typically mean a doubling of the population within a delimited area. Vertical densification can be one strategy to increase the density of existing townscape areas and denotes a development where the number of stories become systematically higher over time.

2.2. Drivers of density

Densification for intensifying dwelling opportunities, was recently proposed in many European Countries (Gaffron et al. 2005; Thwaites et al. 2007) and in Sweden (Boverket, 2016). HID is a new strategy in Sweden for intensifying the urban environment further – when land in central positions have been depleted or protected. Building or rebuilding new dwelling areas at a high tempo is a recurring phenomenon coinciding with major shifts in history, reflecting new ethics (policies) or new knowledge (technology shifts in energy use or new innovations which have triggered new land use patterns).

Building *dense housing areas in Sweden,* seems historically to coincide with times of fast urban expansion (Johansson, 1991). It's often supported by policy makers (trying to manage the population growth) and construction companies (looking out for profits). Vertical and intensive horizontal densification appear to follow waves of moving domestic rural or international refugees – trying to find urban jobs or escape from war. Waves of urbanization was *i.a.* induced in many Swedish cities by domestic migrants from the countryside to find jobs in the cities at the turn of the last century (around 1900) (Johansson, 1991). Migration from southern Europe and the Swedish countryside after WWII was a second trigger to the fast expansion and densification in Swedish suburbs during the 1950s. A third wave of European migration, followed by densification, occurred later during the Swedish million program (1961–1975) (with the aim to build one million apartments and villas) (*ibid*).

The contemporary flows of war refugees from Syria and Ukraine to *e.g.,* Sweden from 2015 is a fourth example (*e.g.,* SOU, 2017). During all periods of migration surges, urban development was characterized by massive expansion and densification.

2.3. Contemporary echoes of earlier densification

There are also *claims* – *e.g.* from well-reputed practitioners – that skyrises and HID-housing in general, is not compatible with the human constitution, our senses or with human beings' ability to create and uphold social networks (*e.g.* Alfvén, 2016 highlighting 'an inhumane scale'; Gehl, 2010 who emphasized the conditions for an attractive street life; Acking et al. 1974, who focused on medical evidence of negative effects of million program architecture). There are also many studies of social health risks with high-rise dwelling and horizontally denser apartment blocks, related to distance to natural elements and settings in large-scale courtyards and in parks (Skärbäck et al. 2014; Rådberg, 1988; Kaplan and Kaplan, 1989; Grahn and Stigsdotter, 2003). The massive literature also give voice to a skeptical choir of researchers and practitioners, as well as residents' opinions and statistics concerning issues about what the social costs are of living in HID areas and how these affect access to green space and elements, as it was expressed in the *Greenways Theory* first coined by Frederic Law Olmsted but theoretically framed much later (Ahearn, 2002).

One typical feature for the green planning of the post-WWII housing areas in Sweden, was the development and interlinkage of four scales of greening (Berg, 2009; Alexander et al. 1977; Wagner, 1923). The entrances were often designed with trees, shrubs and sometimes perennials – especially in the period 1930–1945 (Persson and Persson, 1995:31; 1989:18–19). These small-scale elements were seamlessly connected to the large inner courtyard green. During the later 'neighbourhood planning period' (1945–1959) courtyards were in turn typically connected to larger neighbourhood parks and forests –for recreation, health, and play (*ibid:*28–31*)*.

3. Site and research question

Eriksberg is a near-suburb with 7000 inhabitants, four km west of Uppsala center with houses predominantly built shortly after WWII. Houses and tenancy types were mixed, from large villa areas to small house areas to rented and owned apartments in low-rise housing areas but also with substantial additions of high-rise buildings described as 'Houses-in-Park' (Fig. 3). Most of the homes can be found in multifamily houses of three or four stories, with large lush inner courtyards and typically with one side facing local forest or field patches. Eriksberg was originally planned according to the model of 'the ABC-city' (work-housing-service center). The district was planned to become 'complete' with all functions needed close-by for a convenient everyday life. The past 40 years much service has shut down.

4. Contemporary history and presentation of the earlier development of eriksberg

Our starting point was to reflect on the planning doctrines that have affected Eriksberg district's current and projected housing density, scale and structure. Eriksberg's villa area was developed during pre-functionalism in the 1920s. Most of Eriksberg was – however – planned during and just after WWII (1940–1950) (Bergold, 1985). The prevailing urban development doctrine was *modernism* with large-scale urban functions, such as zonation, traffic separation and an architecture where form follows function (*e.g.,* Le Corbusier, 1923). Eriksberg was very much the result of the first Swedish interpretations of *functionalism*, the earliest version of modernism, with three-story houses with spacious inner courtyards, well-designed to provide healthy environments (Persson and Persson, 1995) with access for dwellers to clean air, light and green areas and elements in a range of scales close to the dwellings (Bergold, 1985). From those authors it was made clear that the city architect of the time – Gunnar Leche – for all of the first three multi-family house areas in Uppsala - Lassebygärde, Tuna Backar and Sala Backar - had prescribed a number of similar functional characteristics. Leche worked in a time strongly affected by Holger Blom's

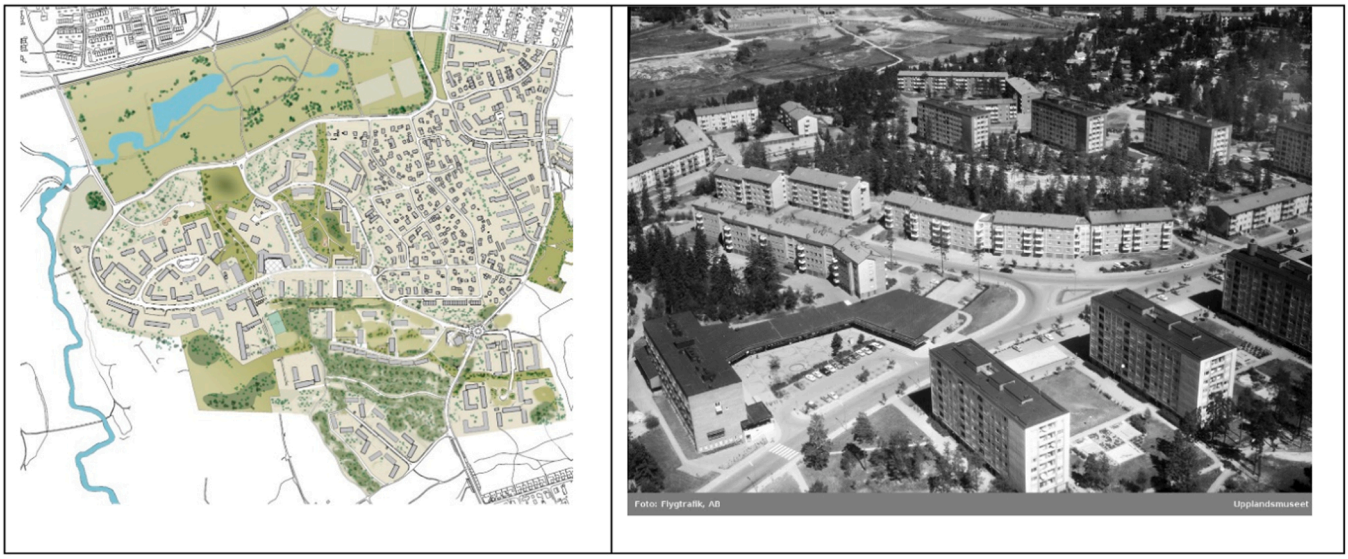


Fig. 3. The houses in Eriksberg were built in a functionalistic style with plain facades with limited ornamentation (center of right aerial photo). The roofs were built with a simple saddle-form. The outdoor planning of these areas is considered one of Swedish Town planning history's most advanced periods regarding space, air and light (Persson and Persson, 1995; Boverket, 1996). Green structure (map to the left) was integrated in four scales, where courtyard green and district parks were connected and, in our investigations, the most cherished levels according to residents (see results below). Such post-war suburbs were also planned to have a smaller but complete service center at walking distance: *e.g.* post, bank, shops, cafés, pre-schools, schools, primary health care, dentist and library (small suburb center Västertorg can be seen to the lower left of right photo). Also, public transit and connecting active transit small-roads were planned.

'emerald structure' ideas (where parks and green spaces should form a 'necklace' of green, connected with greenways (Andersson, 2000). Practical norms were to build housing blocks that had 30–40 m between house facades, that the houses should be at the most three stories to allow for sun illumination of the courtyards, prevent insight into apartments and provide free views from apartments, playing surfaces, small cultivation areas and recreational areas (Boverket, 1996).

4.1. Functionalist medium-density housing that has undergone infill densification

The structure of Eriksberg is dominated by high-rises (more than 7 stories) and buildings between 2 and 4 stories. The originally buildings were mostly adapted to the district's scale and structurally integrated in a range of scales with green elements and areas.

Two of the best examples of well-planned residential courtyards in Sweden are by a legendary garden architects of that time – Ulla Bodorff – partly from Nynäshamn (local district 'Älgen') and from 'Sommarro' district in Eriksberg (Persson and Persson, 1995). The three-story houses in Nynäshamn were like the current courtyards in Eriksberg (Fig. 1) arranged in groups of three houses with 35 m between facades, which provided space for simple but ingenious gardens with sun illumination, playing spaces, recreational spaces, protection against insight and with attractive views. In other courtyards of Eriksberg the distances is 20–25 m between facades with a conscious adaptation to the terrain, openings for morning and evening sun, play and a balanced amount of daylight illuminated encounters between neighbours.

These houses are nationally and internationally renowned and their outdoor environments comprise the largest part of Sweden's housing stock (900,000 multifamily apartments, Persson and Persson, 1995). It's difficult to find written records of distances, courtyard sizes and definitive norms for housing heights – but in practice housing distances from this era are typically between 20 and 40 m. The courtyards are close to 2000 m^2 per 100 dwellers (50 households), and the number of stories are typically 3–4 in the inner suburbs, and no more than 4–5 in blocks of the city centers. The need for further densification, has up to now been accomplished through in-fill densification of several smaller projects in locations that did not challenge the existing courtyard structure. Houses and blocks have been added house by house or block by block to the existing structure to satisfy the need of new housing for younger families, elder elderly, and younger elderly.

This paper presents results from the case study of southern Eriksberg in Uppsala in Sweden. The study is comparing the current situation (before planned densification) with a planned situation suggested by the municipality, and the southern part of Eriksberg will be subject to HID (FSI changes from 1 to 4). Our research question was: *What are the main effects on green structures* in different scales out from the planned Highly Intensive Densification (HID) in the residential area of southern Eriksberg, according to the development plan of Eriksberg and the residents´ opinion?

5. Method

The qualitative research (Blalock and Blalock, 1971; Bogdan and Taylour, 1975) presented in this paper is based on case study methodology. A case study is an empirical inquiry with a focus on creating understanding of a contemporary phenomenon within its real-life context by generating practical and context dependent knowledge (Yin, 2009). When considering to use case study as a method it is necessary to ask if the study is relevant from a societal perspective. The main strengths using case study methodology is the ability to explore a relationship between phenomena, context, and people as well as the ability to capture the context and lived reality of people, in this study, residents. General conclusions drawn from case studies differs from generalization in quantitative studies, where statistical generalization is used. In case studies, analytical generalization is instead used based on the researchers' previous experiences and conducted research together with other researchers performed research. The case presented in this paper is defined according to the categorisation of Miles and Huberman (1994) as a spatial case (a site) and a social case (an individual/social context). The site is the residential area of southern Eriksberg, and the individuals in a social context are the residents living in southern Eriksberg. The main aim was to investigate the residents' attitudes towards densification in their residential area, analyzed in an urban greening perspective.

The results presented are based on data conducted using the methods

questionnaire and document studies.

5.1. Questionnaire

Questionnaires were distributed in total to 400 households, which corresponded to all residents in the selected delimited case study area in southern Eriksberg, 200 households in low-rise (2–4 stories) and 200 in high-rise (>7 stories) buildings. We selected households in buildings which would be affected by the planned densification. In total 40 responses were received by ordinary post. Since the respondents were not representative for the demography of the 400 households - an over representation of residents with Swedish ethnicity responded - we decided to supplement the study reaching 40 more respondents. This additional work was conducted with residents mainly with foreign background that were not or only marginally speaking Swedish. This in order to increase the representativeness of respondents and thereby the trustworthiness and authenticity (Lewis et al., 2004). The same questionnaire was used but the additional work was conducted outdoors in southern Eriksberg, by approaching potential respondents asking if they could consider to participate in the study. The researcher asked the questions to the respondent and then filled in the answers in the questionnaire. The respondent and the researcher checked together that it was filled in correctly.

The questionnaire started with background questions on for how long time the respondent had lived in the residential area, the main motives why they moved to the area, and if they were planning to stay in the area. A comprised set of questions targeting green values in different scales: entrance-, courtyard-, district- and wilderness greening (Berg, 2009), before and after the planned densification provided the focus of the questionnaire. Additional questions regarded attitudes to social and aesthetic aspects related to urban greening. Finally, questions were asked on attitudes, experiences of living in the area and expected consequences in a HID situation. Most questions were closed-ended with predetermined response options and for some it was possible to provide open-ended comments. Most questions offered a scale *e.g. very valuable, valuable, less valuable, not at all valuable, I don't know,* with one, or in some cases several options that could be selected. For example, a question on the respondents' preferences of four scales of green (see Table 2 below). The collected data was processed and analyzed with the statistical program SPSS. The quotes from the open-ended comments were sorted into categories according to pattern analysis. In cases where about 2/3 or more of the respondents had the same opinion, we used the wording 'the majority stated that…'. In parallel, the quotes were also used in other parts of the analysis, as they provided relevant information as a complement to the quantitative data.

5.2. Document study

A content analysis (Bergström and Boréus, 2005) based on the data presented in the municipal spatial development plan for Eriksberg (Uppsala Municipality, 2017) were conducted with focus on two scales of green structures: courtyard green and district green. The main aim was to study the consequences of the planned development out from a green structure perspective. The following categories were studied and analysed: planned house types, location of additional buildings, distance between houses, the number of new planned apartments, reduction of residential yards, barrier effects to previously available greenery, and sizes of courtyard green and district green. The information was further analysed and compared to the current situation with that of the HID-plan of Eriksberg (Uppsala municipality, 2017).

5.3. Limitations

Since we during the data collection phase did not knew who the new residents were that would move into the new planned apartments in Eriksberg, this group was therefore not possible to reach and include in the study. However, the aim of the study was to reach residents who already lived in the area, to ask about their experiences of living there related to urban greening as well as their opinion on the planned densification project.

We chose to conduct the questionnaire in the southern part of the residential area Eriksberg that would be significantly affected by the densification since the planned properties would be added next to their current housing estate. It could also have been interesting to include residents from other parts in Eriksberg who would not be significantly affected by the planned densification.

The additional work with the questionnaire outdoors was performed during three weekdays and two weekends. We reached the respondents outdoors in the residential area, one morning, once at lunchtime, one afternoon, and one evening. At each of the selected occasions, we spent two hours in the area. This means that we did not reach 'all' dwellers, however we reached residents with foreign background, which was the main aim with the additional work with questionnaires.

6. Results

Main results from document studies and the empirical studies are presented below. Results from both the questionnaires and the structural interviews are presented as aggregated data. The reasons for this were that the same questions were asked in both studies and the fact that the structural interviews were a supplement study to the questionnaires. Another aspect was that there was no intention to compare the results between them. For results related to all categories of green structure, representative quotations are presented.

6.1. Document study

Uppsala municipality was recently planning for HID in Eriksberg (Uppsala municipality (2017). From the current population of 7000 inhabitants an additional 5000 inhabitants were originally projected within 20 years. This means almost a doubling of the housing units, apartments and population in southern Eriksberg (see Fig. 4 and Table 1 for a comparison). The main results from the analysis of the municipal spatial development plan for Eriksberg show that a loss of key greening was evident where houses were projected to be built. Both courtyard and district green forests and fields constitute the land where the houses were planned to be erected. More than half (60 %) of the green structure near houses (courtyard green) and 80 % of nearby nature (district green) were calculated to be lost because of the planned HID. Current residents were proposed to utilize the closest nature reserve (Hågadalen-Nåsten), the city forest, and the recreational Ekeby valley (Uppsala Municipality, 2017) while green recreational areas *within* the settlement would disappear. Further on, a comparison of the current situation with that of the HID-plan of Eriksberg was conducted regarding population, type of housing, number of stories, size of different green structure types, and distance between houses Table 2.

6.2. Empirical studies

A clear majority of the respondents were satisfied or very satisfied with their residency, due to Eriksbergs location in the city including its nature-like surroundings: *i.a.* in Håga valley, Ekeby valley, the forests Stadsskogen and Blodstensskogen. At the same time it was a marked worry among respondents about the area may lose its original charm and character due to shrinking green spaces. Further on, a majority of the respondents stated that they were willing to stay in the area unless it does not change much due to ongoing and planned HID.

The nature surrounding and penetrating Eriksberg was also appreciated for its productive ecosystems services, offering mushrooms, berries, and encounters with small wild animals. Respondents also emphasized that nature around and within the residential area, contributed to better air, and an increased well-being due to nearby

Fig. 4. Current plan of Eriksberg built 1920–2010 (left map) and the densification plan (2017) with an additional 2 200 apartments (right map) in multi-family houses.

Table 1
Comparison of the current situation with that of the HID-plan of Eriksberg (Uppsala Municipality, 2017).

Current situation of Eriksberg's multi-family house area	The situation after the proposed HID densification was readily measured based on the plan, maps, and program.
* The population is currently 4000 inhabitants in the southern part of Eriksberg * Most apartments in Eriksberg are let out by the municipal company Uppsalahem * The dominating standard apartments were built in 3–4 story houses, with some 8-story high-rises during 1970-ties * The inner courtyards are currently 2000–3000 m^2 * Distance between facades is currently 20–30 m * Housing blocks are typically placed 30 m from the next block. All houses and residents have access to courtyard green 10–30 m from entrances – and district green forest or meadow patches 100 – 300 m from entrances. All houses have currently at least one side of house with free views, efficient insight protection and access to sufficient light into apartments. * Today all residents have access to district green forest- or field parks less than 100mfrom their entrances.	* A doubling of the population to 8000–9000 will occur when 2200 planned apartments are built among 3000 existing. * Densification is projected to occur mostly within such rent areas, fewer among owned apartments and villa areas. * Numbers of stories will increase in new houses to 4–6 with additional 7–9 story houses * Inner courtyards will become 20–50 % smaller. * Distance between facades and individual housing districts will decrease to 15 m * A new standard will be established with proximity to other houses instead of the forest or fields on at least one side of the houses. This will decrease the outlook from apartments, access to light, blue skies, and courtyard space. * Three central district green areas will be annihilated, and courtyard green is shrinked to 50 % (Figs. 2, 3, 4).

nature. Also, the wild nature-like residential yards with significant biological diversity, were appreciated as an important quality near apartments, pre-schools, and schools.

Further results show that green structure in different scales in general was a valuable issue for a clear majority of the respondents. Many respondents stated that they had moved to Eriksberg because of the character of the area, defined as "Houses-in-Park" which was expected to change due to the proposed densification. The green structure scale considered being most valuable, independently ranked, was courtyard green 93 %, followed by district green 89 %, entrance green 84 % and wilderness green 80 %.

For the results related to the both categories *courtyard* and *entrance green* most residents had the same opinion, regardless of age and gender. For the category *district green* it was mainly residents favouring exercise, nature and leisure as well as dog owners that stated the value of being close to a woodland or nature area. There were little differences linked to gender and age, but rather to interests and condition. Regarding *courtyard green* a majority found this scale of green, in-between houses as being the most valuable. Such green areas are expected to be attractive, functional and well managed, *i.e.* be used as meeting, activity, and recreational areas. They were seen as social outdoor rooms close to apartments.

"It's wonderful to have a place where children and adults in the area can meet, protected between the buildings. During summertime my children are playing there in the playground and during wintertime they can play mischief with the snow if there is snow. Therefore, we moved to these courtyards – since they were so green and lush." (mother of two small children of 3 and 5)

"I like to have this little green space as an outlook from my kitchen window. I see life and movement even if I cannot get out there by myself due to my handicap." (female 51)

6.3. District green

District green was considered important as spaces for physical recreation. Running, walking, walking the dog, playing and adventure were positive features of district green parks, forest patches, woodlands, meadows, and other non-programmed larger green areas connected with organized smaller courtyards. Clean air, fragrances, connection with wildlife close to the dwelling were all important benefits for residents.

"I have such a 'wild strawberry site' where I walk three times a day with the dog on the average. It's so nice that such areas exist close to where I live. This is actually the reason I moved here. A pleasant area for both animals and human beings. When I am out taking the dog for a walk, I often meet with my dog-walking-friends." (retired male)

"The walks are thus often a little longer. At one time my wife suspected I had a mistress, until she started walking the dog herself and discovered how social dog owners are together." (male 36)

Table 2
Preferences of four scales of green among residents in southern Eriksberg. Results from 80 respondents collected from two main streets. The smallest scale (entrance green) referred to the space just outside each stairwell. The next-to-smaller-scale (courtyard green) referred to the common courtyard of each multi-family house. A larger scale (district green) comprised nearby parks, playgrounds and ball parks. The largest scale (wilderness green) referred to forests, fields, waters, and wetlands at active transport distance.

Southern Eriksberg, Granitvägen and Täljstenen block. Number of households=80	**Very valuable**	**Valuable**	**Less valuable**	**Not at all valuable**	**Don't know**
Entrance Green (small-scale) Trees, flowers, or bushes by your entrance (0–3 m from your entrance).	64 %	20 %	15 %	0 %	1 %
Courtyard Green (medium-scale) Trees, lawns, arbor, sitting- and playing areas, walking pathways with good illumination. (3–30 m from your entrance).	78 %	15 %	6 %	0 %	1 %
District Green (large-scale) Park, green playgrounds, ball parks, prospect hills, forest groves, meadows, or urban agriculture (30–300 m from your house).	58 %	31 %	5 %	1 %	5 %
Wilderness Green (landscape scale) Forests, nature areas, cultivation, or grazing areas (300–3000 m from where you live).	41 %	39 %	4 %	9 %	8 %
Water on the residential yard: Water mirror, water flow, playing pond, fountain (10–50 m from your entrance).	33 %	40 %	11 %	6 %	10 %
Water in the larger residential area: Pond, small creek, murmuring water in the park (100–300 m from your entrance).	25 %	35 %	20 %	8 %	13 %
Water in the surrounding areas: Lake, river, roaring water (1000–3000 m from where you live).	23 %	34 %	20 %	9 %	15 %

"I wish that politicians and civil servants lived like this – then they would discover how important it's with the district green areas. Right now, they don't seem to understand that." (male 36)

"I wish that all schools could have this benefit – *i.e.,* to be able to have outdoor pedagogics in a nearby forest at walking distance! A luxury for us pedagogues to recurrently bring the children on walks, discovery trails and ski tours." (teacher in nearby school)

6.4. Entrance green

Concerning entrance green *aesthetic* values were mainly highlighted together with *well-being.* Residents commented on the value of keeping neat and tidy in front of their house and own entrance.

"I am not really a garden person but like when it looks nice at the entrance and the gate. It means a lot for well-being that it looks well maintained." (male 46)

"A beautiful entrance is important. For me it's like a much-anticipated home greeting. It's not a place where you linger but an important place that you notice. I think the caretakers should put more care on making beautiful, inviting entrances." (retired female)

"Nice with plantations. But in that case, they should be taken care of!" (male 27)

6.5. Wilderness green

Wilderness green was appreciated mostly for its excursion and weekend visit properties. This is where residents go with different means of transport during shorter holidays for hiking, long walks, bicycle tours, car or bus tours, picking mushrooms and berries, family outings and to reach water fronts, lakes, sea and river shores.

"Lovely to have walking or cycling distance to such areas. Here we have both the city forest and the Håga area. We had many cosy excursions there over the years!"

(Husband and wife with children 10 and 12 years old)

"I know there are nice areas around us here, but unfortunately I don't have the energy any more to walk that far. I am however aware of that these areas are good air cleaners and an asset for all of those who can come there." (female 86)

"I often take a running round in the City forest and cycle to Håga with my study mates for picnic and the likes. Proximity to such resources, enhances such million program areas, that sometimes have a little bad reputation." (male 21)

"Water means 'life' in my language. This is exactly how it is! Water is important to people and animals. It's pretty to watch but you don't have to have it – as Napoleon – just outside your house." (male 52)

"There is a luxury if it's within the area. But for me it's enough if it's in a lake nearby. During summer we can swim, go by boat, fishing etc. and in the winter we can skate." (male 24)

6.6. Aesthetic aspects of green structure

Asking about the outdoor environment and in particular regarding green structure, we received comments strongly related to aesthetics for instance about maintenance to keep the courtyards attractive. There were also statements on the importance of outdoor environments being pleasant (beautiful, inviting, safe, stimulating for play and tranquility). Some respondents also called for decoration of the outdoor environment as well as places for activities like *i.a.* grill spots and outdoor play – related to visual, gustatory and combinations of visual, proprioceptive and vestibular stimulation:

"So wonderful to be close to *i.a.* <district green> Blodstensskogen (nearby forest). I am there in principle every day, irrespective of

weather. I take my morning walk and enjoy the birds chirping, fragrances from mature verdure and the meetings with small animals living in the forest." (female 51)

"It is important that the residential yards are neat. Flowerbeds, bushes, trees, furniture and sculptures. But then it should also be well-kept – and this is not always the case." (female 36)

"For me the aesthetic means something to rest the eyes on and something tickling the senses. It could be a calm place where you can hear birds chirping or just enjoy the silence in a separate corner, where there is a pleasant calm. There are many such places that I usually search for when I am meditating. The fantastic forest here is my little paradise that I visit often. This summer I even found both berries and mushrooms there." (male 21)

"The outdoor environment in my area ought to be inviting and welcoming. It doesn't need to be grand or lavished – just feel like a nice extra living room where I can go to relax no matter of the time of year." (female 49)

"A nice housing area should be enjoyable even for us that doesn't have so agile legs. A nice view from inside, not a lot of noise close to the houses if you wish to open a window and sit on the balcony and just enjoy life and movement on the yard. Would also want some fun things for us residents on the inner yard, for example a gazebo, a grilling place and an outdoor chess. Wish that they who plan the houses should live here themselves – then the areas would look different." (female 83)

"An area is often valued for how it is managed and designed. Of course it is green but this is not enough. Wish to have some sculptures, form and colour." (male 24 [architecture student]).

6.7. Social aspects related to greenery

One of the strongest worries among dwellers was the new social landscape that can be anticipated because of HID expressed in both empirical studies. A doubling of population may be one of the strongest challenges for HID.

A majority of the respondents stated that they are not in favour of an exploitation of southern Eriksberg, while important green areas are threatened:

"I like that the area is a home for people with different ages and backgrounds. I am a little worried about the area changing its character adding so many new housing units. Densification can be a good thing, but there must also be space for animals, nature, and all kind of human beings." (female 57)

"I like to sit here when the weather is nice, looking at people passing and children playing. Here one can have one or the other chat. I am a little extra talkative you see, since my wife passed away a couple of years ago." (male 73)

"I like that there are places in my area with trees, bushes, benches, playing tools etc. where people can meet and relax. I don't use these as much right now, during the finish of my degree, but I think it's cosy and safe to see activity when I cycle by." (female 23)

"It's good with green and tidy outside the houses. But I miss benches that we often had outside our rented houses in Poland. If such were there I would sit and check out the neighbours coming and going. Maybe also talk with someone." (female 71)

"For me who has some trouble walking a long way, this is a good place to view neighbours, I wish to have contact with. In that way I have got some new friends!" (female 56)

7. Discussion and conclusions

The main strength of this study is the contribution to fill the knowledge gap on the role of green structure at different scales in HID projects, from residents' perspectives. Their knowledge and experiences of living in Eriksberg, contribute to new knowledge and understanding of the value of urban greening in different scales, contexts and functions. The use of case study methodology made it possible to explore the relationship between urban greening (the phenomena) in Eriksberg (the context) and the residents (people) in their lived reality. Other strengths of the study were the selection of the case, which can be compared to similar Swedish residential areas where outdoor environments, neighbourhood, and urban greening seem to be central values; as well as the method which gave nuanced answers, and was adapted to different categories of respondents.

This study showed that the respondents in southern Eriksberg were not most critical to the densification per se, but to the consequences of the planned densification. Above all, this considered the green structure that was planned to be exploited and built on. The results show that most of the respondents had very strong opinions and feelings on facing the loss of green structure. There was a marked worry about the area losing its original charm and character due to shrinking green spaces. It was clear that the courtyard green, the district green and the entrance green were highly valued by the respondents, and that they fulfilled different functions. There were statements on the importance of outdoor environments being pleasant (beautiful, inviting, safe, stimulating for play, and tranquil). It's clear that the proximity to small-scale nature - in-between the houses - constituted a large and important part of the aesthetic values. Furthermore the courtyard green and the district green had important functions as places for meetings and activities for the residents. The courtyard green was important for the residents who, for various reasons, were unable to have access to or were unwilling to get to green areas further away. It was suitable for activities that takes limited time, while activities in the district green more often were planned for longer stays, e.g. walking, mushroom and berry picking. Furthermore, the analysis of the document study of the municipal plan for southern Eriksberg also showed that an implementation of the plan will transform the original concept of Eriksberg (Houses-in-Park) into a 'new' Eriksberg with a compact design and much smaller green spaces in between the houses, which will be the consequences of a HID project.

According to the results there is an indication that aligns with the earlier planning doctrine, expressed in a Swedish context 1930–50. The respondents clearly favoured this 70–90 years old doctrine Houses-in-Park with its norms and objectives. Despite arguments for HID, there is a knowledge gap of the full consequences of implementing HID. Our results and previous literature gave us reason to question if it's an open-end solution: there was a limit of scale effects while houses are placed too close, built too high, and spaces between houses including greenery, become too small, consequential for dwellers' qualities of living. Residents and Researchers alike now call for *qualified density* (Gaffron et al. 2005), *time-people-place* sensitive space (Thwaites et al. 2007) and *functional density* (Berg et al. 2012) to emphasize the need for considering soft values of human habitation. However, planning authorities call for compact approaches while densifying without losing key qualities (Boverket, 2016) with similar reasoning in global policy documents (UN, 2015) referring to the Habitat-agenda (UNCHSUD, 2016; UNCHS, 1996). There is a demand to balance evidence-based density qualities with spaciousness qualities to conserve land and other resources but at the same time preserve and develop the good and attractive city containing enough space and green structure. The results are also in general congruent with other research showing that densification displayed negative impacts on and access to green structure in residential areas (Berghauser et al. 2020; Skärbäck et al. 2014; Thwaites et al. 2007; Grahn and Stigsdotter, 2003; Kaplan and Kaplan, 1989; Rådberg, 1988).

While discussing and reflecting on the study, we need to stress the meaning of understanding the results in a Swedish context, a small

country with a small population 10,5 million (SCB, 2022-12–31) accustomed to have space and close to urban green places and nature. Also, the case southern Eriksberg is specific for this type of residential areas based on the concept "Houses-in-Park" which often means that the courtyards are spacious. The results are congruent with the residents' attitudes to the original ideas and norms molding Eriksberg formulated 80 years ago. A conclusion is that HID may dissolve or inhibit the existing degree of density and spaciousness that has been functional, and the values that attract residents. Since Eriksberg is built according to an urban planning ideal that sought to get away from overcrowding, it's understandable that people living in the area reacted to a complete opposite doctrine of urban planning that was proposed by the municipality. Partly this applies to the residents' direct present-day experiences of having access to plenty of urban greenery, partly that the original character and ideals of the district were neglected and almost perceived by the residents to be devalued by present-day decision-makers. They were perceived as not valuing what was once the very starting point for the 1950s development.

In a densification perspective, green areas often become 'obstacles', 'thresholds' and 'barriers' to a dense city. The greenery is therefore set aside, step by step as the city grows and is further developed. But the densification also affects the green structure in various ways because of the differences of neighborhoods depending on the type of urban development in the city (Berg, 2009). Eriksberg is an excellent example where very massive densification (HID) clashes with the urban planning ideal that gave rise to the district. The current plans in Uppsala municipality of horizontal and vertical densification may be a strategy that goes beyond what is needed for a balanced development: 2200 (originally 2400) new apartments within the current blocks and houses with 3000 existing homes. This massive volume of densification may have severe consequences in the whole district from an access-to-green perspective which also indirectly concern social equity and health. One conclusion we can draw based on the results is that it's important to study and map how green environments are used in residential areas and in what way they can be strengthened in an effective way when densification is planned.

We suggest that densification projects in existing residential areas should be highly related to the scale, size, extent of the densification, and the existing structure. In cases like Eriksberg where greening is of great importance, not only for the dwellers but also for many other residents in different parts of Uppsala, it's crucial to balance the city's need for housing and the residents need for greening. This could explain the results of this case study, the concordant expressions by the respondents regarding the value of urban greening.

Author statement

Hereby we submit our second major revision. Thanks for all the valuable comments that we have taken into account as far as we have been able to do.

The difference between this and the previous version is that we now have focused on developing the section on methods, and an introductory paragraph of the discussion. Please, see also the table in 'Reconsideration of manuscript'. We have suggested a new title for the manuscript.

We wish you a pleasant reading and hope that our revised script will be to your satisfaction.

CRediT authorship contribution statement

Per Hedfors: Writing – review & editing, Writing – original draft, Visualization, Validation, Conceptualization. **Madeleine Granvik:** Writing – review & editing, Writing – original draft, Validation, Conceptualization. **Tuula Eriksson:** Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Fredrik Eriksson:** Writing – review & editing, Validation, Software, Methodology, Investigation, Formal analysis, Data curation. **Per G. Berg:** Writing – original draft, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgement

This research rests firmly on funded projects by the Swedish government research council for sustainable development, Formas. Two larger projects on density and sustainable community development (Berg et al. 2012) and three smaller implementation projects on Functional Density since 2009 (Berg and Granvik, 2018). It is also founded in three earlier local sustainable community development projects in Swedish and Baltic Sea Cities (Berg and Nycander, 1997; Berg, 2002; 2004, Berg et al. 2010). The research is also anchored in other international research on densification *e.g.* in a special issue of *Nordic Journal of Architectural Research* – devoted to display contemporary motives for densification, tools and strategies for its functional implementation (see Granvik and Berg, 2014).

References

Acking, , 1974, Bygg mänskligt. Askild & Kärnekull.
Ahearn J. (2002) Greenways as strategic landscape planning: theory and application. Wageningen University (Wageningen).
Alexander, C., Ishikawaa, S., Silverstein, M., 1977, A pattern language – Towns, Buildings, Constructions. Oxford University press..
Alfvén G. (2016) Ohälsosam arkitektur. Balkong förlag (Stockholm).
Andersson, T., 2000. Erik Glemme och Holger Blom. In: Andersson, T., Jonstoij, T., Lundquist, K. (Eds.), *Svensk Trädgårdskonst under 400 år.* Formas. (Stockholm).
Berg, P.G., 2004. Sustainability resources in Swedish townscape neighbourhoods – results from the model project hågaby and comparisons with three common residential areas. Landsc. Urban Plan. 68, 29–50.
Berg, P., 2009. Fyra Nyanser av Grönt – Den uthålliga stadens fraktala grönstruktur. In: Hedfors, P. (Ed.), Urban naturmark i landskapet. Rapport Stad och Land 3. SLU, Uppsala.
Berg, P.G., Eriksson, T., Granvik, M., 2010. Micro-comprehensive planning in Baltic Sea urban local areas. Eng. Sustain. ICE J. 163 (ES4)), 219–232. Nominated to Best Overseas Paper 2010.
Berg, P.G., Granvik, M., Hedfors, P., 2012. Functional density – a conceptual framework in a townscape areas context. Nord. J. Archit. Res. 2.
Berg, P., Granvik, M., 2018. Funktionell Täthet – Att balansera täthet och rymlighet i svenska städer. In: Olshammar, G., et al. (Eds.), Hus mot himlen – Hållbar Hybris. Arena (Malmö).
Berghauser Pont, M.Y., Berg, P.G., Haupt, P.A., Heyman, A., 2020, A systematic review of the scientifically demonstrated effects of densification. World Conference on Sustainable Built Environment in Gothenburg 9-11 June.
Berglund U. (1996). Perspektiv på stadens natur. Om hur innevånare och natur sett på utemiljön i staden. KTH (Stockholm).
Bergold, K.E., 1985. Bostadsbyggande i Uppsala 1900-1950 - aspekter på folkhemmets framväxt. Acta Univ. Ups. Ars Suetica 8.
Bergström, G. och Boréus, K. (2005) Textens mening och makt: metodbok i samhällsvetenskaplig text och diskursanalys. Lund: Studentlitteratur.
Björk, C., Nordling, L., Reppen, L., 2012, Så byggdes staden – Stadsbyggnad, Arkitektur, Husbyggnad. Svensk Byggtjänst 3:e Upplagan (Stockholm).
Blalock, A.B., Blalock, H.M. Jr, 1971, Methology in Social Research. McGraw-Hill. London,.
Bogdan, R., Taylour, S.J., 1975, An Introduction to Qualitative Research. Wiley. New York.
Boverket, 1995, Den måttfulla staden (The Moderate City, in Swedish). Rapport 1995:7.
Boverket (1996) (https://www.boverket.se/contentassets/54e91d61310741f08b288133eaf08d44/boken-om-detaljplan-1996.pdf).
Boverket (2016) Rätt tätt – en idéskrift om förtätning av städer och orter. Swedish National Board of Housing, Building and Planning. Karlskrona.
Dempsey, N., Brown, C., Bramley, G., 2012. The key to sustainable urban development in UK cities? The influence of density on social sustainability. Prog. Plan. 77, 89–141.
Evans, G.W., Wells, N.M., Moch, A., 2003. Housing and mental health – a review. J. Soc. Issues 59 (3), 475–500.
Gaffron *et al.* 2005. Ecocity Book I. EU Commission (Hamburg).
Geddes P. (1915). Cities in Evolution: An Introduction to the Town Planning Movement and to the Study of Civics. London: Williams & Norgate.
Gehl J. (1971). Livet mellem husene. Udeaktiviteter og udemiljöer. Arkitektens förlag. (Köpenhamn).

Gehl J. (2010) Cities for People. Island press (Vancouver).
Grahn, P., Stigsdotter, U., 2003. Landscape Planning and Stress. Urban For. Urban Green. 2-1, 1–18.
Granvik, M., Hedfors, P., 2015. Evergreen issues of planning? Learning from history for sustainable urban-rural systems landscapes, European Journal of Spatial Development.
Granvik, M., Berg, P.G., 2014. Densification as a planning strategy. Nord. J. Archit. Res. 26 (2), 1–206.
Haupt P.A. *et al.* 2020. A systematic review of policy motives for densification in Swedish planning practice. World Conf on Sustainable Built Environment Gothenburg 9-11 June.
Haaland, C., Konijnendijk van den Bosch, C., 2015, Vol 14, Issue 4, P760-771. Urban Forestry & Urban Greening.
Johansson I. 1991. Stor-Stockholms bebyggelsehistoria. Gidlunds/ BFR (Stockholm).
Kaplan, R., Kaplan, S., 1989, The Experience of Nature. Cambridge University Press. Cambridge..
Kristensson E. (2003) Rymlighetens betydelse – En undersökning av rymlighetens betydelse i bostadsgårdens kontext. Arkitektur Lunds Tekniska Högskola.
Le Corbusier (1923) Vers une architecture. Les Editions G.Crès & Cie (Paris).
Lewis, M.S., Bryman, A., Futing Liao, T. (red.) (2004). The SAGE Encyclopedia of Social Science Research Methods, Volume 3. Thousand Oaks: Sage.
Miles, M.B., Huberman, M., 1994, Qualitative data analysis: An expanded sourcebook. 2. Ed. London..
Newman, P., Kenworthy, J., 1992, Cities and Automobile Dependence. Avebury technical (Aldershot, USA).
Persson, B., Persson, A., 1995, Svenska bostadsgårdar 1930- Byggforskningsrådet T1: 1995 s 9; 16-17.
Persson, B., Stenmark, B., 1989, Den gemensamma trädgården. Stad och Land nr 78.
Roseland M., 2012. Toward Sustainable Communities. New Society (Gabriola Island).
Rådberg, Johan, 1988, Doktrin och täthet i svenskt stadsbyggande 1875-1975. Rapport / Byggforskningsrådet, 0349-3296; 1988:11. Stockholm: Statens råd för byggnadsforskning..
Skärbäck, E., Björk, J., Stoltz, J., Rydell-Andersson, K., Grahn, P., 2014. Green Perception for Wellbeing in Dense Urban Areas – A tool for Socioeconomic Integration. Nord. J. Archit. Res. 2, 179–205.
SOU, 2017, Att ta emot människor på flykt. Betänkande av Utredningen om migrationsmottagande 2017:12..
Statens Planverk, 1972, Bostadens grannskap – råd och anvisningar för planering. Rapport 24..
SCB, 2022, ⟨https://www.scb.se/hitta-statistik/statistik-efter-amne/levnadsforhallanden/levnadsforhallanden/undersokningarna-av-levnadsforhallanden-ulf-silc/pong/statistiknyhet/undersokningarna-av-levnadsforhallanden-ulfsilc-2021/⟩.
SEPA 1990, Stadsluften: En bok om stadsluften (The City Air, in Swedish). Ed. Lennart Möller. Swedish Environmental Protection Agency.
Thwaites K. *et al.* 2007. Urban Sustainability through Environmental Design. Approaches to time-people-place responsive urban spaces. Routledge (London).
UN 2015, Sustainable Development Goals - Sustainable Cities and Communities.
UNCHS 1996, The Habitat agenda and the Istanbul Declaration. UN Conference on Human Settlements. (Nairobi).
UNCHSUD 2016, UN Conference on Housing and Sustainable Urban Development – The New Urban Agenda (Habitat III). Adopted 16 October in Quito, Equador. UNHabitat (Nairobi).
Uppsala Municipality, 2017, Eriksberg och Ekebydalen – Planprogram. Plan och Byggnadsnämnden godkänd den 23 November 2017..
Wagner M. 1923, Alter und neue Bauwirtschaft. Vorwärts Buchdruckerei. (Berlin).
Wahlström, L., 1984, Geografiutveckling och geografisk utveckling - som om platser betydde något: [Development of geography and geographical development - as if places mattered]. Göteborg: Kulturgeografiska inst., Univ.
Yin, R.K., 2009, Case study research. Design and methods. 4. ed. Thousand Oaks, California..