



Integration of allotment garden in public green space for the social wellbeing of urban residents

— A study of Ekebydalen allotment garden, Uppsala, Sweden

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Swedish University of Agricultural Sciences, SLU

Faculty of Natural Resources and Agricultural Sciences

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Abstract

Background: Agriculture is among the relevant factors for the formation of cities and it has been an integral part of city life throughout history. Despite the increase in population growth, urban agriculture can offer a unique opportunity for improving the livelihood of individuals through the practice of growing food in urban green spaces. Nevertheless, maintaining urban green spaces as part of the urban fabric presents a unique challenge in an environment where there is a shortage of housing and urban space is limited for development. Allotment gardens might be seen as compensation for the lack of green space and private gardens in cities, especially in dense urban areas. However, due to the long waiting list for renting out, not everyone can get access to growing locally cultivated food and other benefits, especially people who are less privileged and cannot afford private gardens.

Objective: The aim of this thesis, therefore, was to design a proposal for urban green space, Ekebydalen, to show how to integrate allotment gardening with other social activities. Also, as an input to the proposal, the history of allotment gardens and the theory of sustainable wellbeing was reviewed, and local public participation was investigated.

Method: Literature was extensively reviewed in an attempt to identify relevant studies and better understand the context and characteristics of allotment gardens from a social and environmental context, the change in its land use, and accessibility; all in the perspective of the general development of urban agriculture and specifically in allotment movement through history in Sweden. Moreover, Site observation was conducted in a purposely selected allotment garden, Ekebydalen, Uppsala city. Also, an online and paper-based self-administered cross-sectional survey was done among 40 participants.

Result: 6 different allotment gardens were observed and characterized. Based on the case study (observation), the Ekebydalen allotment garden was chosen as the main site for further proposal development. (60%) of the respondents in the survey were middle-aged (30 -50 years old) women (77.5%), most of them with university education (88%) and Swedish background (90%). Despite the participants has reported living in close proximity to the gardens, around a fourth of them reported having waited for more than six months. Gardening and nature interest (100%), socializing (15%), food complement (62%), and maintaining wellbeing (65%) are the motivation for renting allotment gardens.

Conclusion: This thesis argues that the economic and well-being values of allotment gardens are perceived as highly significant compared to the social benefit that is allegedly seen less. Nevertheless, the social value can be seen as equally important if integrated as an activity with other social activities in a city, especially in urban communities that don't have enough space for gardening and are caught in their busy lives. Moreover, a design strategy was proposed to show how the allotment garden can be integrated as an activity for cultivation and recreation use (Cultivation park). This thesis has also implied that policy support, institutional recognition, and strong political will from policymakers and planners are required to bring urban agriculture into city planning for improving the quality of life for the people living and working in cities.

Keywords: Integration, Urban agriculture, Gardening, Allotment garden, Urban park, Cultivation Park, Social Wellbeing

Summary

Urban agriculture, the practice of cultivating has been around as long as there have been cities. Although the potential contribution of urban agriculture is primarily connected to alleviating the gaps in food security, in the world of rapid urbanization, urban agriculture can still play an important role in maintaining urban green spaces for cultivation at the same time creating and strengthening a sense of community in a city.

"The measure of any great civilisation is its cities and a measure of a city's greatness is to be found in the quality of its public spaces, its parks and squares."

John Ruskin

In order to improve the quality of life for the people living and working in cities, urban green areas are needed. Urban agriculture as part of the urban green areas is significant for the daily lives of everyone including old people, children, workers, and unemployed people living in the city.

The positive impacts urban agriculture has on society is the main reason why the thesis is examining the influence of Allotment gardens on urban residents. Accordingly, this thesis has examined, from a social well-being perspective, whether urban agriculture can drive urban green space to promote healthier and more sustainable lifestyles for residents, giving way to an equitable and sustainable city. Thus, this thesis promoted a vision of answering why and how the prevalence of allotment gardening in urban green spaces might be a solution that affects the social and other aspects of the human experience than just the economic gains.

The research question is answered through a site study of six allotment gardens followed by a survey questioner and observation in the chosen allotment garden (Ekebydalen allotment garden, Uppsala, Sweden). The principles of the validated method Meerci™ developed in a licentiate and doctoral thesis by Lena Steffner (2004, 2009) is used as the basis for collecting the participant's affective appraisals of specified places within Ekebydalen's allotment environment.

The findings from the study show that allotment garden distinguishes itself by the prevalence of inclusive yet diverse activities; with cultivation and organic-food production on the one hand, and with passive leisure activities, and environmental-driven land-use management on the other.

Key findings indicate that allotment gardening in urban green space contributes to the quality of life in urban areas, as it fulfils broad ranges of functions and services to the wellbeing of nearby urban residents (Allotment Gardeners). The benefits include food production as well as the provision of passive recreational services and other services related to a sense of community and the management of the cultural landscape, which in turn can potentially contribute to the ecological capacity of the landscape.

From the perspective of gardeners, the opportunities attached to allotment gardening (growing/ cultivating your own food, health and wellbeing, and the exposure to nature) conditions outweigh the social values. This finding has stimulated the thesis to propose planning and designing strategies for the future use of allotment gardens in cities. Those strategies lift the often-neglected questions of social sustainability and the complex values of green infrastructure integrated in the built structure of modern cities.

The design and planning proposal responds to the recreational, cultivation, and social needs of the allotment gardeners that could also benefit the residents. Thus, the proposal indicated the potential integration of allotment gardens as a cultivation activity with other urban park activities (Cultivation Park) for strengthening the perceived gap. This thesis firmly believes that, a well-designed cultivation park is a public green space that is a social, productive place that invites people to stay and interact in the various activities that take place.

Finally, when reflecting on the landscape planning and policy requirements for integrating allotment gardens as an activity, the main fields of action is the reassurance of multifunctional land-use for cultivation-recreational activities in urban green areas. Within this context, the role of municipalities is recognised as key to the spread of urban agriculture. This brings intentions and decisions of different actors, such as the administration, civil-society associations, interest groups, and the gardeners themselves to secure the status of allotment gardens as part of the public green space.

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Abbreviations

AD	Anno Domini/ in the year of the Lord
ART	Attention restoration theory
BC	Before Christ
COST	European Cooperation in Science and Technology
4H	Head, Heart, Hands, and Health
PERMA	Positive Emotion, Engagement, Relationship, Meaning and Purpose, and Accomplishments
SLU	Swedish University of Agricultural Sciences
SWOT	Strength, Weakness, Opportunity, and Threat
UN	United Nations
UNPF	United Nations Population Fund
UOGS	Urban Open Green Space

1. Introduction to the Study

1.1. Topic and Purpose

The topic for this thesis is the integration of urban agriculture and social activities in the urban green infrastructure. This thesis work has three purposes.

- 1.) To structure theory and findings of the variety of important qualities that urban agriculture provides in an urban environment,
- 2.) To create design strategies on basis of the theory and findings that fit into a planning strategy for green infrastructure and finally
- 3.) To apply the strategies on a specific example in Uppsala, Ekebydalen.

1.2. Outline of the Thesis

This thesis consists of six chapters. Below, the roles and main points of each chapter are briefly outlined in an overview of their content and connections.

Chapter one: Gives an introduction and background to the thesis. It gives reasons as to why the study is done and its purpose. A short historic overview of the role of green spaces in cities provides a perspective of the development of urban Agriculture. Alongside this, the theoretical framework in chapter one gives a comprehensive understanding of the linkage between urban open space with social sustainability and wellbeing.

Chapter two: Establishes the focus and aim of the research and the study's main research question: 'How can urban agriculture be better integrated with other social activities in a city?'

Chapter three: Presents a general literature review on green spaces in an urban environment. It then draws upon key literature and introduces allotment gardens as an urban green space. It explores the ways in which the allotment connects with wider geographical ideas of landscape and culture within the historical context of an allotment movement in Uppsala, Sweden.

Chapter four: Describes the methodological approach and procedure of the research. It breaks down the methodological components of the study to clarify how information was gathered, selected, analyzed, and organized in order to answer the research questions raised in chapter two.

Chapter five: Contains analyses in response to the collected data and presents the result in the study's findings. Based on the main findings of the study, this chapter formulates strategies and presents a design proposal for Ekebydalen as an example of a planning strategy. The proposal suggests a sustainable conceptual design for creating a new or reshaping an existing open space in Uppsala city.

Chapter six: It discusses the main outcomes and relates them to the framework constructed in Chapter one. By discussing the importance and influences on the experience of conducting this study, this chapter gives Implications for further studies/ research which this thesis can serve as a foundation and reference. Finally, this chapter draws conclusions from the content of the study and ties this thesis together with some recommendations.

1.3. Background

This section introduces the concept of *open green space* through a historical description of the roles it has played in cities. The descriptions indicate the importance of urban gardening for coping with major crises during the historic collapse in the existence of cities and identifies the social processes.

The concept, *urban gardening*, is then introduced as a complement to the global food system, transmitting knowledge of how to grow food and as an urban environmental movement for protecting green space from specific land-use practices that establish themselves against possible alternatives for development and for re-imagining cities in which such gardening occurs.

The emergence of cities is closely associated with a significant historical change, which is called the *Neolithic Revolution*. The Neolithic Revolution marked the transition from exploiting livelihood (hunting and gathering) to production livelihoods (breeding and cultivating = agriculture).

The advent of farming encouraged hunter-gatherers to abandon nomadic lifestyles and settle near others who lived by agricultural production. Agriculture yielded more food, which made denser human populations possible, thereby supporting city development.

Ancient cities

The oldest towns originated in the 5th to 2nd millennium BC in the Middle East (Mesopotamia, Iran, and Egypt). The emergence of the settlements was the result of the trading centers. The ancient cities were characterized by the regular layout and showed common features of the city: The landmark was the palace of the ruler with vegetable gardens outside the city wall, temples, and palaces of the courtiers, cities were very widespread, Various neighborhoods were formed, yet often showed a large open market open space for trade which they used for the exchange of goods from crafts.

The concept of public space comes from the Greek ‘agora’, which was where citizens could make a free speech, share intellectual opinions, and enjoy convenience from market exchange. (Mitchell, 1995). Agora, the central marketplace, of Ancient Greece, was 30 acres in size and contained several markets, teaching porches, theatres, a gymnasium, courthouse, and prison, five temples, and many sculptures of gods and goddesses. Therefore, Agora functioned as an integrative center for those activities that were crucial to the Greek way of life and its democracy.

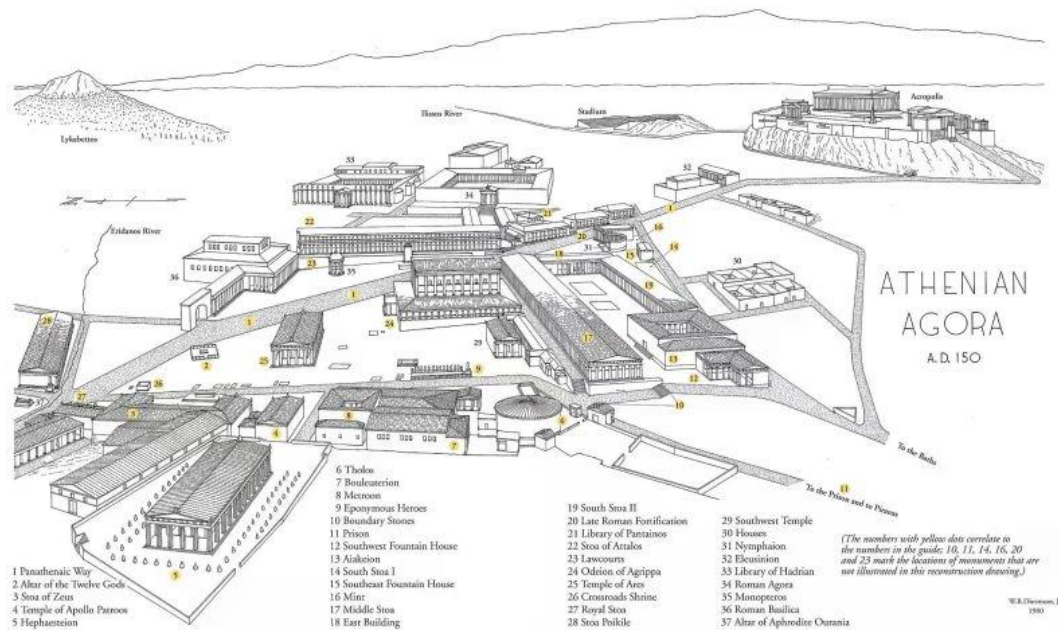


Figure 1. "Compound Plan, Athens/Agora" 2nd Century ad, by Alexander Philadelphus, former director of the national Archaeological museum and director of Acropolis

The city in the era of Industrialization

During the industrial era, cities grew rapidly and became centers of population growth and production. In the larger cities, industries were established and people from the countryside moved to the big city in search of work. They worked long days in the factories and the homes that existed in the fast-growing cities were often substandard, worn, cramped, and draughty.

During the 19th century when a large number of people migrated from the rural areas to the cities to find employment and a better life. With the continual rage of the first world war in Europe, the lack of an efficient transportation system and shortage of food was enormous. Thus, Allotments were initiated to help with food supplies and to give the workers a better quality of life and a place to grow food.

At the end of the 19th century, the power and the rising responsibilities of the municipalities reflected in the appearance of the first law to urban allotment gardens. Until the third decade of the 20th century, the growth of food in urban environments meant an important part of the city's consumption. The fresh products, beans, and vegetables came from the allotment gardens along the streams and rivers of the city. In addition to allotment gardens, more temporary plots were created anywhere possible. Potatoes and cabbage were also grown in inner-city parks during both world wars.

Megacities with Suburbs

The growth of the modern industry from the late 18th century onward led to massive urbanization and the rise of new, great cities. As new opportunities brought vast numbers of migrants from rural communities into urban areas, Rapid growth brought urban problems with recreation areas in the suburbs often being full of contaminated water and air.

Furthermore, Parks, Boulevards, Esplanades, Allotment gardens suffered from the priority of cars and built structure in city centers. The spaces for the allotment garden started to be occupied with highways, residential areas, railroads, and other infrastructures necessary to the growth of the city. Similarly, the transformations to the agricultural activities were influenced as a result of the new industrial culture of cities and interests associated with the improvement of transportation that allowed a quicker and more economical supply of the central markets.

Modern Western Cities

During the late 19th and 20th century, planners and architects as Le Corbusier, Lewis Mumford, Frank Lloyd Right, and Ebenezer Howard had a significant role in promoting functional design and planning for open green spaces in cities. The planner's models of the Radiant City, Grid City, the Broadacre City, and the Garden City are well connected to the era of Modernism. For example, Howard's Garden Cities of To-morrow (1902) is the prime advocate of green spaces (Skonieczki, 2010). He raised the concern about a growing population where urbanization leads to a greater need for green spaces due to lack of space.

Although cities have been around for thousands of years since the first known settlements in Mesopotamia between 4000 and 3000 B.C., it is only over the last several centuries have humans moved into cities en masse. Now more than half the world's population lives in an urbanized world (Habitat, 2001) and the UN expects this figure to rise to 70% by 2050 (United Nations, 2014). Despite the increase in population growth, cities can still offer social, economic, and environmental changes (UNFPA, 2007). Therefore, urbanization could be an opportunity for sustainable growth with the potential to use resources more efficiently, to create more sustainable land use, and to protect the biodiversity of natural ecosystems.

Studies aimed at understanding the land-use change process and their consequences from local to global have shown that, as cities grow, urbanization and food production are in direct competition for land (Bren d'Amour et al., 2017; van Vliet et al., 2017). The increasing intensity in food production, trade, and the changing of uncultivated land for agriculture, and agricultural land for built-up infrastructure causes land-use competition in the peri- and ex-urban landscape. The peri- and ex-urban landscape attend a competing need in the everyday practices of deciding over how land and land-based resources may or should (not) be used. Thus, reaching an agreement on sustainable multifunctional land-use can potentially be challenging.

Landscapes that serve different needs tend to be productive in various ways. For example, they can offer spaces that are public and accessible for all. Those types of open spaces are not cultivated with food crops and tend to be productive for leisure and recreational activities, access routes, urban green lungs, etc. But most uniquely, they will be productive by providing unexploited space for urban agriculture, for the inner-urban and peri-urban growth of food. Urban agriculture provides a unique opportunity for improving the livelihood of individuals through the practice of growing food and managing the ecosystem services that are generated by engaging in gardening (Barthel, Parker, and Ernstson, 2015).

The changing practices in the productive open spaces link social, cultural, environmental, economic dimensions of sustainability and global environmental changes, e. g. climate, biodiversity, and other realms, that again feedback on people, their livelihoods, and the development of the urban structure of the city. The experience and value of being socially engaged in gardening help to initiate a collective socioecological memory. Those shared memories play an important role in the transfer of knowledge, experience, and practice of ecosystem management besides initiating people to be socially active. Thus, through the availability and accessibility of green spaces, urban agriculture has the ability to contribute to urban resident's community support, cognitive performance, and psychological well-being (Keniger et al., 2013).

1.4. Problem Statement

Uppsala city is the fourth largest and fastest-growing city in Sweden with respect to population. In 2019 Uppsala municipality had a population of about 230,767 which means a population increase of 5,603 people compared to the last of December 2018. By 2050 Uppsala may have as many as 340,000 inhabitants (Uppsala municipal forecast 2017).

The increase in population means that, in the next few years, 3,000 new homes will be needed every year (summary of the 2010 comprehensive plan, 2014). This indicates that the fabric of the city, which consists of built structures, green structures, Blue structures, street networks, and utility infrastructures will need to be developed in order to meet the demands of a denser city. As a result, Maintaining the land-use for urban green spaces as part of the urban fabric could potentially present a challenge. This challenge could intensify with the urgency for housing in an urban space that is limited for development.

One example of a serious land-use change with a reduction of valuable green space with intense biodiversity in Uppsala city is Uppsalahem's (a housing company in Uppsala city) development of a new residential area on the site of an allotment garden by Fyrisån (see fig. 2). The housing program for Fyrisvallen aimed at detailed planning of the Fyrisvallen colony cultivation area for residential buildings in four-five floors and to create improved public accessibility of the section along the Fyrisån between Gamla Uppsalagatan in the north and the railway in the south. Despite the strong demand for people to be active in the Fyrisvallen allotment and the fact the 200 cultivation plots were the only cultivation plots in or near the district Luthagen, they still were proposed to be replaced with cultivation plots along Börjevägen beyond the colony cottage area (see fig. 3).



Figure 2. Before and After land use change of Fyrisvallen allotment garden, Google map, modified by the author of this thesis.

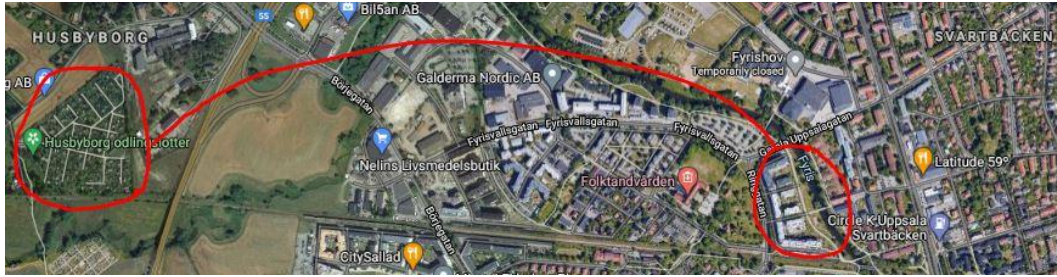


Figure 3. Relocation of Fyrisvallen allotment garden to Husbyborg area, Google map, modified by the author of this thesis.

The cultivation plots were forced to relocate 3.2 km away to husbyborg even though different sectors involved in the planning and consultation of the housing program had mentioned the value of Fyrisvallen to be significant.

According to the Upplandsmuseet, the cultivation plots were said to have been established in a culturally and historically valuable time of grower labor and the need for self-sufficiency during times of crisis. Fyrisvallen's colony area was one of the few remaining parts along the Fyrisån river in central Uppsala that has not yet been built on and which belonged to Viola at Österplan, which therefore could have told about the historical development of allotments in Uppsala.

The Environmental Council at Uppsala municipality were also hesitant about the submitted proposal, as it was going limit the proportion of green space in a district that currently has a shortage of such, and partly because the cultivation plots constitute a critical element in the urban environment which promotes the municipal goals for wellness, biodiversity, and cheap park management. Fyrisvallen's colony area fulfilled an essential function as a green area in the inner city, and thus contributed to giving both association members and visitors an opportunity to get closer to nature.

Members of the Fyrishov association were also not happy with the housing program for Fyrisvallen. A letter was sent from the board of Fyrisvallsodlarna; Runa Hallin (chairman) and Ulla de Verdier (secretary) to the politicians in the Uppsala municipal board, the real estate committee, and the building committee; To local media on 2003-07-07 about their stand on the program (See next page).

From the letter Fyrisvallsodlarna association wrote, it is clear to see that the allotment lots were used with strong interest from the urban residents. Fyrisvallen allotment has been of great importance for Uppsala city, the support of families, and the residents of Uppsala city during great times. The cultivation areas were a meeting place for many different cultures, ages and a place where one can grow their own vegetables, especially for people who do not have much money.

Let Fyrisvall live!

Take a walk along Fyris' western beach north of Uppsala city center. Between Fyrisvallen and Fyrisvov is Fyrisvall's cultivation plot area, right now perhaps in its most beautiful flowering. We, growers at Fyrisvall, demand to be allowed to remain in this, the oldest colony area in the city. But this lung in central Uppsala is threatened by devastation. The association Fyrisvallsodlarnas lease has been terminated. Next fall we have to be gone. The politicians in the technical commissioning committee decided on construction, provided that we growers were offered a good alternative to the cultivation area. No such thing has been offered! We are proposed to be deported to a field in Husbyborg, next to the colony cottage area, which is already there. But it is not a good alternative! In a survey we did, it has been shown that half of the Fyrisvall growers say NO and can NOT imagine moving there. Basically, everyone wants to keep growing. But only TWO of the survey responses are positive about moving to Husbyborg. The differences are many.

A basic idea with cultivation plots is that they should be located in the city - close to the homes. It provides accessibility for growers - even for those who do not have a car. The vast majority of our growers live in the immediate area around Fyrisvall. Many are older. Many do not have a car. The survey results show that the vast majority believe that Husbyborg is too far away. In addition, Fyrisvall's cultivation area gives life, desire and color to the city. Another basic idea with cultivation and allotment plots is the welfare aspect - important to safeguard. That people in the city, without high incomes, villas, and Volvo, should also be able to enjoy plant cultivation.

At Fyrisvall, young and old, women and men, immigrants, and natives, experienced and novices meet. No effort is required here, more than your own work. Everyone who has garden dreams, but lacks capital, can join. There are no fences and locked gates that lock the public out. With a move to Husbyborg, hundreds of growers would lose the opportunity for the recreation, wellness, exercise, de-stressing, beauty experiences, joy, pride, creativity, nursing, patience testing and shit under the nails that leisure cultivation entails - all that in several research reports proved so important for human well-being and health.

Our membership survey clearly shows that Husbyborg is not an equivalent alternative to Fyrisvall. Politician! Keep your word! Since there is no equivalent alternative - within a reasonable distance - let's stay! Do not let capital and short-term profit interests' rule! Let our cultivation plots continue to flourish next to the Fyrisån river in the city!

Quotes from the survey results: "Fyrisvall has been my elixir of life", "Tragic that Fyrisvall sees its last summer", "Fyrisvall means a lot to me", "Wants to stay", "Access to river water and nightingales", "It is completely wrong to build on all green areas in the city instead of letting the city grow in circumference ", " Let's stay at Fyrisvall! ".

(Source: Detail plan for Fyrisvallen from 2006, Stadsarkivet Uppsala Kommun, Public opinion and quotes are translated from Swedish to English by the author)

Most allotment gardens in Uppsala city are owned either by the municipality or by associations and rented out either individually or collectively. In both cases, due to the long waiting list for renting out, not everyone can get access to growing locally cultivated food, especially people who are less privileged and cannot afford private gardens.

Similarly, The COST action's memorandum of understanding (Cost Action TU1201 2012) argues that during the last twenty years urban residents have shown an increased interest in allotments. However, while waiting lists lengthen, competition from other types of land use is also increasing. As a result, the sustainable development goals for how the city's design and how green spaces be built in the long term might be hindered by short-term economic forces such as the urgency for housing development.

Furthermore, during the years 2017-2021, between 87 and 94 percent of the annual housing supplement is expected to take place in the Uppsala urban area. This gives a total share of 89 percent of the addition during the forecast period. The supplement is assumed to be largest in the North-eastern city, followed by the Central city and the Western city, with assumptions of the total, in descending order, about 3,600 - 2,300 homes (Sub-area forecast 2017–2021, Uppsala municipality). Due to population growth, the consumption of land by new residential developments is among the factors that can possibly lead to a loss of greenspace or can potentially intensify the challenge of greenspace maintenance in Uppsala's urban areas.

As a landscape architect, I find it important to understand the values of urban green spaces in order to go beyond and improve the future use of outdoor spaces in dense cities like Uppsala. With the continuing need for housing in Uppsala, the temptation to use every available open green space for new construction could lead to monotonous densification of the urban environment and at the same time to the destruction of open green spaces.

I ask myself, what could be the future use of allotment gardens in a developing urban setting like Uppsala city. Will they be demolished and forced to be relocated like Fyrisvallen cultivation plots? or will they have a protected permanent position in the city's fabric?

Thus, this thesis work will aim to seek out knowledge for landscape planning strategies on how to better integrate urban agriculture specifically allotment gardens with the daily lives of the society. The theories presented in this paper will be illustrated by a draft development proposal of a specific area in Ekebydalen, Uppsala city, which includes two existing allotment gardens, namely Ekebyodlarna and Odlarföreningen Flogstaringen.

1.5. Theoretical Framework

This section introduces theories and frameworks that are relevant for familiarizing the dynamic relationships between people and the natural landscape. The frameworks draw different theories and concepts from those approaches that are useful and relevant to the study of landscape as an open green space, as a productive setting, and as a place for well-being and social actions.

Wellbeing and Social action are about people coming together to help improve their lives and solve community problems. This involves people giving their time and other resources for the common good, in a range of forms from volunteering and community-owned services to community activities or simple neighbourly acts (Cabinet Office, 2015).

The frameworks adapted are, the design principles of Fredrick Law Olmstead which is a relevant approach that uses nature as a tool to improve the quality of life through landscape planning strategies of open green space. The 4H city farm concept involved in the creation of a community that is centered around a farm or garden. Kaplan's Attention Restoration Theory (Kaplan, Kaplan, 1989; Kaplan, 1995) are used to explain why the natural environment is such an important element for wellbeing. and finally, the PERMA well-being model that measures the quality of life.

Urban Park System

Frederick Law Olmsted, the first professional that recognized the need for a specific profession called a landscape architect, reminds us of the uplifting value of landscape and that green spaces can bring social improvement by promoting a greater sense of community and providing recreational opportunities, especially in urban environments.

Olmsted's design principles (see table.1) and thoughts about community were critical to his argument for urban parks. Though parks may be seen as only amenities, Olmsted saw them as forces for social change. He believed that parks would have a "harmonizing and refining influence" on the urban population as a whole (Adam Rome, 2017). This is because he views parks as a naturalistic landscape that can solve societal challenges. such as overcrowding and disease, and as realms for blending the benefits of both countryside and city.

Olmsted also thought that nature in urban environments should not just be a single entity as a park but a connected green system design of parks and parkways that could ease the tension created by the chaos and noise of urban areas.

Table 1. The design principles of Fredrik Law Olmsted in National Association for Olmsted park by Charles E. Beveridge, January 1986 from the Twenty-fifth Anniversary issue of Nineteenth Century, the journal of the Victorian Society in America

Design Principles	Characteristics
A Genius of Place	The design should take advantage of unique characteristics of the site, even its disadvantages. The design should be developed and refined with intimate knowledge of the site .
Unified Composition	All elements of the landscape design should be made subordinate to an overarching design purpose . The design should avoid decorative treatment of plantings and structures so that the landscape experience will ring organic and true .
Orchestration of Movement	The composition should subtly direct movement through the landscape. There should be separation of ways, as in parks and parkways, for efficiency and amenity of movement, and to avoid collision, between different kinds of traffic.
Orchestration of Use	The composition should artfully insert a variety of uses into logical precincts, ensuring the best possible site for each use and preventing competition between uses.
Sustainable Design and Environmental Conservation	The design should allow for long-term maintenance and ensure the realization and perpetuation of the design intent. Plant materials should thrive, be non-invasive, and require little maintenance. The design should conserve the natural features of the site to the greatest extent possible and provide for the continued ecological health of the area.
A Comprehensive Approach	The composition should be comprehensive and seek to have a healthful influence beyond its boundaries . In the same way, the design must acknowledge and take into consideration what surrounds it. It should create complimentary effects. When possible, public grounds should be connected by greenways and boulevards to extend and maximize park spaces

Olmsted believed in the restorative power of landscape and that the primary purpose of places like parks is to provide the best means of healthy recreation for everyone. This is because the smoke from the cities' factories, the crowded tenement buildings, and the unhealthy city life of the 1800s caused him to see that city parks could serve as a viable release from the stresses of urban living. Due to this Olmsted felt a pressing need to improve the health and well-being of Americans during this time of growing urbanization. Thus, He pointed out that green space and exposure to nature can restore and nurture the body and spirit of all people, regardless of their economic circumstances.

Accordingly, in an urban environment that is dominated by manmade elements, accessibility, and exposure to nature or the elements that evoke nature may have a positive effect on human health and well-being. For example, working with and experiencing plants, gardens, or other aspects of a farm environment. This can give the opportunity for urban residents to interact with farm animals, agriculture, and just to be in nature and enjoy the landscape setting especially for people who may never visit a rural farm.

4H City Farm Concept

4H city farm concept (head, heart, hands, and health) is focused on positive youth development, providing experiences and activities that increase the likelihood of positive wellbeing (National 4-H Council, 2016). With 4H's motto “Learn by doing”, and key concepts of 4H, the natural environment allows the youth the opportunity to interact and engage with nature in a hands-on activity. From conservation activities to activities in nature, such as walking in forests, gardening, and outdoor activities. Participation in 4-H fosters core objectives, such as knowledge and skills, leadership and personal development, and citizenship skills through its projects, activities, and programs (Astroth & Haynes, 2002).

In the late 1800s, according to the National 4-H History Preservation Program, “researchers found that young people who are engaged in 4H activities were open to new thinking and would experiment with new ideas and share their experiences and successes with their parents. This helps to construct an understanding among other reasons, that ‘being’ in nature provides an opportunity for educational and environmental activities. The exposure to nature is not only enjoyable and educational but can also help improve our focus and ability to concentrate (Ohly, White, Wheeler, Bethel, Ukoumunne, Nikolaou, & Garside, 2016). Additionally, the presence of fascinating elements such as vegetation and other natural features in the environment is also thought to enhance relaxation and increase the likelihood of attention restoration (Morris, 2003).

Attention Restoration Theory

Attention restorative theory (ART) is a framework proposed by Stephen and Rachel Kaplan in the late 1980s and early 1990s, that offer explanations for how gardening might contribute to stress reduction. Attention Restoration Theory (Kaplan, 1989, 1995) proposes that there are four main components of natural environments that are integral to the experience of attention restoration in that environment: fascination, being away, extent, and compatibility.

ART suggests that natural settings that deliberate a sense of “being away” from things have a beneficial restorative impact on cognitive resources such as attention and concentration and can reduce stress and fatigue. ART theorizes that the experience of “fascination” allows restoration to occur through the opportunity for reflection and allowing attention to rest through being engrossed in fascinating stimuli (Kaplan, 1995). This is because natural elements are neither boring nor overwhelming and they provide an optimal level of sensory stimulation (Clayton, 2007).

The third component “extent” refers to the quality of restorative environments that encourages you to feel totally immersed and engaged (Kaplan, 2001). It means that the environment does not have any unusual or unexpected features, and you feel comfortable and at ease in the environment. An environment must be at least somewhat familiar and coherent in order for it to be restorative.

In this context, familiar does not necessarily mean you have been to the exact environment before, only that it is similar enough to places you have been that you are not feeling uncomfortable, confused, or out-of-place.

Finally, the “compatibility” component is all about feeling enjoyment and similarity in an environment. Compatibility is higher when you are engaging in an activity that is familiar to you; when you are engaging in a novel activity and learning a new skill or set of skills, you are unlikely to feel relaxed and restored (Daniel, 2014). Thus, restorative environments can provide an opportunity of being away from everyday exhausting elements by letting one be away psychologically and physically, such as by being engaging in thoughts and activities in another landscape setting that are separate from the everyday experience and activities are done.

Theory of Wellbeing: The PERMA model

Quality of life, which has gained importance in social research study since the 1970s, is a broad concept concerned with overall well-being within society. Martin Elias Pete Seligman, the father of modern positive psychology understands how natural it is for individuals to continuously seek what makes them happy, regardless of their age, orientation, and status in life.

Seligman argues that the top of human happiness or well-being is the result of the interaction and experience of five core elements, the PERMA model: Positive Emotions, Engagement, Relationships, Meaning and purpose, and Accomplishments (Seligman, 2012). He believes that they are what people need in order to achieve a healthy sense of well-being, fulfillment, and satisfaction in life that can lead to finding life’s true meaning and quality of life.

Gardening, the practice of growing and cultivating vegetation and plants is often linked to the positive perception of the quality of life and physical activity of people. In a study done on older adults when compared with nongardeners (Sommerfeld et al., 2010), Gardening has been linked to Quality of life, providing participants with opportunities to reconnect with themselves through nature and a healthy activity to enhance the quality of life (Sommerfeld et al., 2010).

A Similar study evaluating the effects of lifetime leisure gardening on women aged 67 to 75 years, who considered themselves to be in good to excellent health, reported that the women felt that gardening kept them mentally and physically active (Infantino, 2005). In similar articles' authors have investigated gardeners' motivations and have identified the benefits of gardening. Some of the most mentioned reasons for gardening are access to fresh and organic food (Wang et al., 2014; Da Silva et al., 2016), enjoying nature (Wang et al., 2014; Martin et al., 2017), health (Wang et al., 2014), and social networking (Teig et al., 2009; Martin et al., 2017).

The theoretical frameworks presented above gives a broader and more comprehensive understanding and recognizing the role of the natural landscape for well-being and health. The theoretical frameworks prove a key factor in explaining why there is such a close and far-reaching relationship between health, well-being, and the natural landscape. Accordingly, Gardening is not only an activity for growing and cultivating, but it is also where different cultures, education, and social events are constructed. As a result, the quality of life for the people living and working in cities can be improved by the accessibility of gardens. Thus, there should be an emphasis given to the planning and designing of these green spaces for sustainable and inclusive use.

2. Aim and Research Question

2.1. Aim

The aim of this thesis is to make a design proposal for urban green space, Ekebydalen, on basis of theory and findings in this thesis of how to integrate allotment gardening with other social activities. The thesis put much emphasis on the basis for the design proposal, the history of allotment gardens, the theory of sustainable wellbeing, and local public participation. The proposal is a program sketch to be used for further discussion with the public and among specialists.

The thesis looks back to the original concepts of urban farming with the movement for allotment gardens, their current use and gives implications for future use with the focus on an activity for well-being and social sustainability.

The literature review in chapter 3 includes a historic description of allotment gardens as urban agriculture and seeks out the feasibility of integrating urban agriculture as an activity in landscape planning for sustainable social use of urban green space. The literature review identifies the activities, the characters of allotment gardens from a social and environmental context, the change in its land use, and the accessibility; all in the perspective of the general development of urban agriculture through history in Sweden.

Observations on-site and interview questions in a survey to local allotment gardeners create an additional basis for the design proposal in an urban green space, Ekebydalen, that includes allotment gardens. The questioners give insight into the motives behind why people want to be involved in allotment gardening, what type of activities they do in their allotment garden, and how the activities are connected to the surrounding areas.

2.2. Research Question

This thesis work sets out to address one basic research question which divides into several sub-questions: The specific questions will address how urban agriculture, specifically allotment gardening as an activity can be cohesive with other social activities such as public urban parks and be better for social purposes, individually and collectively.

1. How allotment gardens can be Integrated with other park activities in an urban green space?
 - a. What are the characteristics of allotment garden?
 - b. What are the experiences and perceived benefits of allotment gardeners?
 - c. What common activities are closely associated with work in the allotment garden?
 - d. How can the common activities be accessible for other people in the city?

The questions, 1 a-d, are answered in chapter 5 in an in-depth analysis using a combination of the literature review and the field studies: observations, and survey. The design proposal in chapter 5 is an illustration and application of the answers to questions 1 a-d at a local site, Ekebydalen. The methods in chapter 4 describe how the basis for the design proposal was built up and how the answers to the questions were found.

3. Literature Review

Within the scope of exploring possibilities of integrating allotment gardens in public green spaces, this chapter discusses the relevant literature and research which explores the values and benefit of open green space and allotment gardens in an urban setting. The dynamic features of urban green open space are seen through the different activities and functions they provide. The terminologies used include urban environment, urban space, public space, open space, green space, and green infrastructure.

3.1. Urban Open Green Space

Urban space is characterized by what is called a “city”; a city is a collection of people and institutional structures that promote the efficient interaction between persons and place (Rakhshandehroo et al., 2017). Similarly, Public space is a space in a city or any other publicly accessible physical place, in the context of social, political, relations, and interpersonal contacts, developed through inclusive processes (Madanipour, 2013). On the other hand, green space literally covers all public and private open space in an urban area, mostly covered by plants (naturally or artificially) including trees, shrubs, and grasses (Fam et al., 2008) which are directly or indirectly available for use (Mensah, 2014) and mainly found in semi-natural areas (Chi Yung Jim & Chen, 2003).

Green infrastructure is a network of connected, high-quality, multi-functional open spaces, corridors, and the links in between that provide environmental services and multiple benefits for people and wildlife (CABE, 2008).

Accordingly, Urban open green spaces are vegetated public and private spaces in cities which are typically categorized by land use and land cover (Kendal et al., 2016). However, Urban open and green spaces can take place in many shapes, forms, functions, and purposes. They may be totally different from community to community; they can vary from a simple playing field to a natural landscape or highly maintained environment and mostly provided with open access to the public or maybe privately owned.

3.2. The need for Open Green Space in Urban Area

This section seeks to understand the values and benefits of urban green space. Within the scope of this thesis, the need for open green space in urban areas is seen primarily through the social and wellbeing aspects. The type of urban green spaces is focused on recreational and functional green spaces. These include parks, thematic parks, gardens, sports fields, playgrounds, natural and semi-natural areas, and green corridors (Aydemir, 2004).

3.2.1. Health Benefits

Urban open green space is consistently associated with health and wellbeing through providing concentration memory, self-esteem, lowering depression, aggression, and regulating moods and Behavior (Dave et al., 2016).

They also promote outdoor physical activity (Amano et al., 2018). Physical activity in natural environments can help remedy mild depression, lower stress, and mortality from circulatory disease (Morris 2009; Albus 2010).

Urban green space provides residents with opportunities for contact with the natural environment. Such contact has positive restorative effects on mental health, wellbeing and may also help to provide a buffer against stressful life events. Going to the natural area improves the general health perception of the individual (Byrne & Sipe, 2010). Thus, green open spaces are thought to improve neighborhood wellbeing (Davern et al., 2016).

3.2.2. Recreational Benefits

Urban open space is often appreciated for the recreational opportunities it provides. Green spaces provide formal facilities such as outdoor gymnasiums, skate parks, sports courts, and all-weather pitches. Recreation in urban open space may include active recreation (such as organized sports and individual exercise) or passive recreation, which may simply involve being in the open space.

In a study conducted, Children with greater access to parks and recreational facilities through urban green space have been found to be more active than children who lack access (Wolch. et al, 2014). Access to green spaces has shown an association with recreational walking, increased physical activity, and reduced sedentary time in all ages (Braubach et.al, 2017).

3.2.3. Economic Benefits

Urban green spacing is economically beneficial due to the positive effects it can have on the environment and human health. Urban green space allows the production of food in cities. this helps improve the diet of the population allowing it access to fresh fruit and vegetables, particularly that population with low income. And this reduces costs for maintaining good health in the population.

In addition, the economic perspective of urban open green spaces is, that it values the surrounding properties both residential and commercial. More importantly, it creates a positive attraction for tourists and investments and encourages employment (Paschalis et al., 2009).

3.2.4. Social Benefits

Urban green spaces have been significantly used for various social benefits mainly by providing the opportunity for social interactions to take place.

They strengthen the sense of belonging, the sense of being a community, and the neighborhoods by gathering together all sections of the community in urban green areas regardless of social status (Bertram & Rehdanz, 2015; Kabisch, 2015; Barrera et al., 2016). Thus, it could help reduce social isolation and lead to greater personal resilience and wellbeing. Green areas strengthen the integration of the community and the neighborhoods (Barrera et al., 2016). This situation not only affects the quality of social life but also the atmosphere and liveability of the city as a whole (Chang, 2002).

3.3. Allotment Garden as an Urban Green Space

Drawing upon key literature, this section introduces a historical narrative tracing the origins of the allotment movement in Sweden. The narratives will help to initiate discussions to contextualize the thesis paper. urban agriculture exploring the ways in which the allotment connects with wider societal and geographical ideas of landscape and culture.

An allotment garden often simply called an allotment, or in North America, a community garden is a parcel of land made available in urban areas for non-commercial gardening. Such plots are formed by subdividing a piece of land into a few or up to several hundred land parcels that are assigned to individuals or families. Such parcels are cultivated individually, contrary to other community garden types where the entire area is tended collectively by a group of people.

According to Crouch and Ward, (Crouch and Ward, 1997) the landscape of the allotment is associated with a wider set of ideas and expectations that transcend conventional understandings of rural and urban, private, and public. Allotments are a segment of integrated urban space (Dymek & Bednorz 2017). They are kind of 'third space', characterized by many dichotomies: they are private and public spaces, for production and consumption, for both work and leisure (Spilková & Vágner 2016). They enable the multifunctional use of urban land, such as providing an open space for community and family activities (social cohesion), recreation and health needs (the need to rest, relax and have fun) (Spilková & Vágner 2016).

3.3.1. Allotment Movement in Sweden

Urban agriculture was an obvious source of food in concentrating urban areas during the 17th Century in Sweden. Urban farming was a part of the way of life, limiting dependence on the countryside, and most of the food grown was consumed in the city and not going to markets. This is because the division of labor did not come until the 19th century when food production was moving in from the countryside to supplement the loss of food production by workers moving into the expanding industrial and service sectors (Björklund, 2010).

It should be noted that Urban agriculture has incorporated more than allotment gardens during history in Sweden. For example, as late as the 19th century, parts that are part of central Stockholm today, like "Södermalm", had farmland in-between houses belonging to people with "townhouses". There were also "Malmgårdar", estates with farmland in the city. For the purpose of the study, the historical narrative of urban agriculture is seen through the idea and practice of an allotment garden.

1893-1927's: Urban agriculture as a solution to unemployment

In 1895 the first allotment gardens were established in Sweden (Malmö). According to Dunér & Dunér (p. 172), Sweden's eldest allotment gardens (with houses) were built in Landskrona (also in Scania, like Malmö) in 1888. The area that was built in Malmö a little later showed similarities with the one in Landskrona. The allotment gardens spread from Malmö in the south and on through the country as gardens for poor workers. The idea to cultivate household needs on garden plots within the city originally came from Germany around the turn of the century 1900.

Anna Lindhagen and Anna Åbergsson were leading forces in the allotment garden movement that introduced allotment in Sweden. Anna Lindhagen was not only "a woman in the upper ranks of society", from 1920 she was a member of Stockholms stadsplanenämnd och skönhetsråd (Stockholm municipal planning committee and beauty advice group). So, she was not only a politician, she worked in the municipal planning organization. Anna Lindhagen was also the leader of Koloniträdgårdar in Stockholm (Allotment gardens in Stockholm) which was established in 1906 (Dunér & Dunér, p. 172).

Anna Lindhagen was one of those who saw how the industrial workers and their families felt. As a nurse, she was concerned about the health of children, this was one of the many reasons why she took the initiative to establish allotments in Stockholm beside visiting allotment gardens in Copenhagen in 1903 (Dunér & Dunér, p. 172). She wanted the workers and their families to have access to an allotment where the children could play and stay in the fresh air, where the families could grow their food, and where a new social context could be created.

Anna Lindhagen stated, among other things, the "Economic gain for the colonist, fresh air, change of work, useful and tasty nutrition, the effect of gardening on the mind and a unifying bond for the family." In her first book on the topic devoted to the usefulness of allotment gardens she wrote:

‘For the family, the plot of land is a uniting bond, where all family members can meet in shared work and leisure. The family father, tired with the cramped space at home, may rejoice in taking care of his family in the open air, and feel responsible if the little plot of earth bestows a very special interest upon life’

1914-1950's: Urban agriculture a patriotic act to alleviate food shortages and ease stress during wartime

During the 1914's – 1937's WWI, in Sweden, there was growth in the allotment movement, where allotments created opportunities for people in cities, and growing spaces were used to strengthen family bonds, create a higher standard of living, and strengthen social bonds (Björklund, 2010). The interest in own cultivation of vegetables, fruits, and berries was very great at this time.

However, urban farming disappeared until the 1940s-50s, it is thought that allotment gardens had been adopted into Swedish planning practice and therefore there was little debate over it. Gardening was now seen as more of a leisure activity, than something that was done for food and was no longer necessary for society, but during the war, there were also gardens used for food production to ease the food shortages (Björklund, 2010). At the time of World War II, interest in allotment gardens was very high.

During this time, there were at most about 10,000 cultivation plots in Uppsala. This is in the 1950s, where Uppsala city had about 89,000 inhabitants. The plots were used to grow fruit and vegetables. At this time the allotment had cottages, used as a summer house for residents beside for cultivation and other provisions. A new and extensive allotment area was created at Tunaberg. At the same time, the construction of the Practical Secondary School at Luthagsstranden (later Fyrissskolan) in the 1940s meant that the colony area there was moved north to the location at Fyrisvallen.

1960-present time: Community gardening emerges as a solution to community development challenges

During the end of the 19th century, society gradually shifted from a peasant society to an industrial society. The construction of the railway at the end of the 19th century meant new conditions for industrial establishment in the city, at the same time the development of general wealth after the war made the allotment garden movement less relevant than before. More and more people could afford to buy a car and a summer cottage or travel abroad. However, in Sweden starting in the 1970s was the “green wave” which began to look at sustainable city planning and food security (Björklund, 2010). In the 1980s, interest in cultivation plots increased again and a new area was created. One example is the Ekebydalen allotment garden established in 1981 in Uppsala city.

Urban cultivation (Stadsodling) is manifested in various forms of initiatives in Sweden. It can be present from guerrilla farming and community gardens where private individuals take the initiative to cultivate in allotment gardens in the city to commercial enterprises with the aim of producing food and making a profit emerges up. Researcher Kristina Schaffer (2014) categorizes different types of cultivation into five main categories: ordinary kitchen land, forest horticulture, innovative cultivations, commercial cultivation, and “co-cultivation” (Schaffer, 2014). According to Björkman, allotment gardens (both with and without a cottage) is the common alternative for those who live in a dense city (Björkman 2012).

Today in the 21st century, allotment gardens in Sweden are undergoing a significant change that is connected to a shifting attitude. This attitude sees allotment garden sites as an urban green common in need of modernization and restructuring (Nicola T, 2018). Accordingly, this thesis seeks to explore landscape planning strategies that will be used to secure allotment garden's sustainable and long-term use in a densifying urban environment like Uppsala city. The landscape planning strategies will also preserve and strengthen the original concept of allotment gardens. This concept was as much based on the need of getting out of the apartment to a healthy environment, as cultivating vegetables for economic and social reasons.

4. Research Method

This chapter explains the methodological approach and procedure by which this thesis has been outlined. It starts with Section 4.1 outlining foundational approaches to the research field and process overall. Thereafter Section 4.2 gives a detailed explanation for the methods used in collecting information aimed at answering how urban agriculture can be better integrated with other social activities in a city.

Firstly, of the literature studies: explaining how information has been gathered, selected, and organized. Secondly, of the Site survey: describing the purpose of their inclusion in the research, the ways in which information was acquired and processed, and their setting. Thirdly, an online survey and observations of the Ekebydalen allotment garden making up the core of the research. The online survey seeks out the activities that are associated with allotment gardening and explores the motives behind the user's involvement in allotment gardening.

4.1. Research Methodology

The thesis work primarily uses an inductive approach. According to Bernard, (Bernard, 2011) Inductive research “involves the search for pattern from observation and the development of explanations, theories, and for those patterns through a series of hypotheses”.

To address the key research objectives, this thesis uses a qualitative method with a combination of primary and secondary sources. According to Creswell (Creswell, 2009), qualitative research is an appropriate choice of design when the intent of the research is to understand a certain group or phenomenon.

The reason for deciding on this method comes from the nature of the research questions, which are concerned about personal (Individual and Collective) motives behind urban agriculture practices that are closely associated with words, sounds, feeling, emotions, color, and other elements that are non-quantifiable when compared to qualitative methods which are presented in numbers and require a mathematical calculation to deduce.

4.1.1. Theoretical Framework

The study of the thesis is centered on the theme of urban agriculture, namely its definition, identification, and characterization emphasizing its relevance and inclusion in the objectives of this study. That is the urban allotment garden.

Allotment gardens do not only include activities connected to the production of fresh vegetables in the city, but they are also fundamental on including wellbeing, recreational, and social influences related to the landscape. Thus, the theoretical framework associating with landscape and open green spaces, the historical perspectives of the use of allotment gardens will guide me as a researcher with the basis for planning and design.

4.1.2. Site Study Setting

The research setting can be seen as the physical, social, and cultural site in which the researcher conducts the study. Thus, the study subject of the thesis work is thematically focused on allotment gardens as part of open green space and urban agriculture. It is focused on the present and future use of allotment gardens with a historical perspective of the development and use of the landscape for food production and other social activities.

The thesis's study is geographically delimited to Uppsala city, Sweden. In order to understand the developments and characters of allotment gardens in Uppsala, I found it important to look at two main categories of allotment gardens there are in Uppsala. Those are Allotment gardens with Cottages and allotment gardens without cottages. From within the two categories of allotment gardens, six sites are chosen for a limited case study. These chosen allotment gardens include Koloniträdgårdsföreningen Flora-Linnéa, Koloniträdgårdsföreningen Husbyborg, Odla-föreningen Årstablomman, Koloniträdgårdsföreningen Tuna, Odla-föreningen Gottsundaroten, Ekebyodlarna, and Odla-föreningen Flogstaringen.

The site study areas and corresponding methodologies have been selected according to the formulated research concept aiming in providing a better understanding of the everyday activity that is evolved in the allotment gardens and to have an overview of the character and current use of the allotment gardens. This survey will help in seeking the visibility for future developments of the allotment garden.

4.2. Methods for Collecting Basis for Planning and Design

Data collection methods were focused on secondary and primary data collection techniques. Primary data sources used in the thesis work are field observation, site studies, and online survey questionnaires. The secondary data refers to data that was collected through a theoretical framework, literature review, and document review at Uppsala municipality's Stadsarkiv. To be able to answer the research questions raised in chapter 3, the tools, procedures, and materials that are used to gather the basis for planning and design and criteria for strategies are explained as follows.

4.2.1. Sampling of Site Study

The chosen sampling technique for this thesis work is a non-probability sampling method. The intention of the site study is not to test a hypothesis of the broad types of urban agriculture but to develop an initial understanding of the different types of allotment gardens in Uppsala city. For the purpose of the study, six existing allotment gardens are selected based on their Location, Land use and ownership, and the use and activity that provide. The allotment gardens chosen for study include both colony gardens and cultivation plots.

From the allotment listed in section 4.1.2, I purposively select Ekebydalen allotment garden that contains two associations, namely Ekebyodlarna and Odlarföreningen Flogstaringen for an online survey. The prime reason for the selection of the Ekebydalen allotment area is because the site is proposed in Uppsala's municipal park plan (2013) to be developed as a district urban park.

The questionnaire for the online survey is formulated aiming in providing a better understanding of the everyday activity of the residents that are evolved in the allotment gardening. The online survey questionnaire is used for identifying the sampled residents' experiences and motives to involve in allotment gardening activities. In addition to the online survey, personal observation is made to assess the current status, potential for future development, and the feasibility of integrating allotment gardens with an urban park.

The location of the selected allotment gardens is shown below on the map in figure 6 that depicts the urban fabric of Uppsala city. The red spots in the figure represent the chosen allotment gardens.

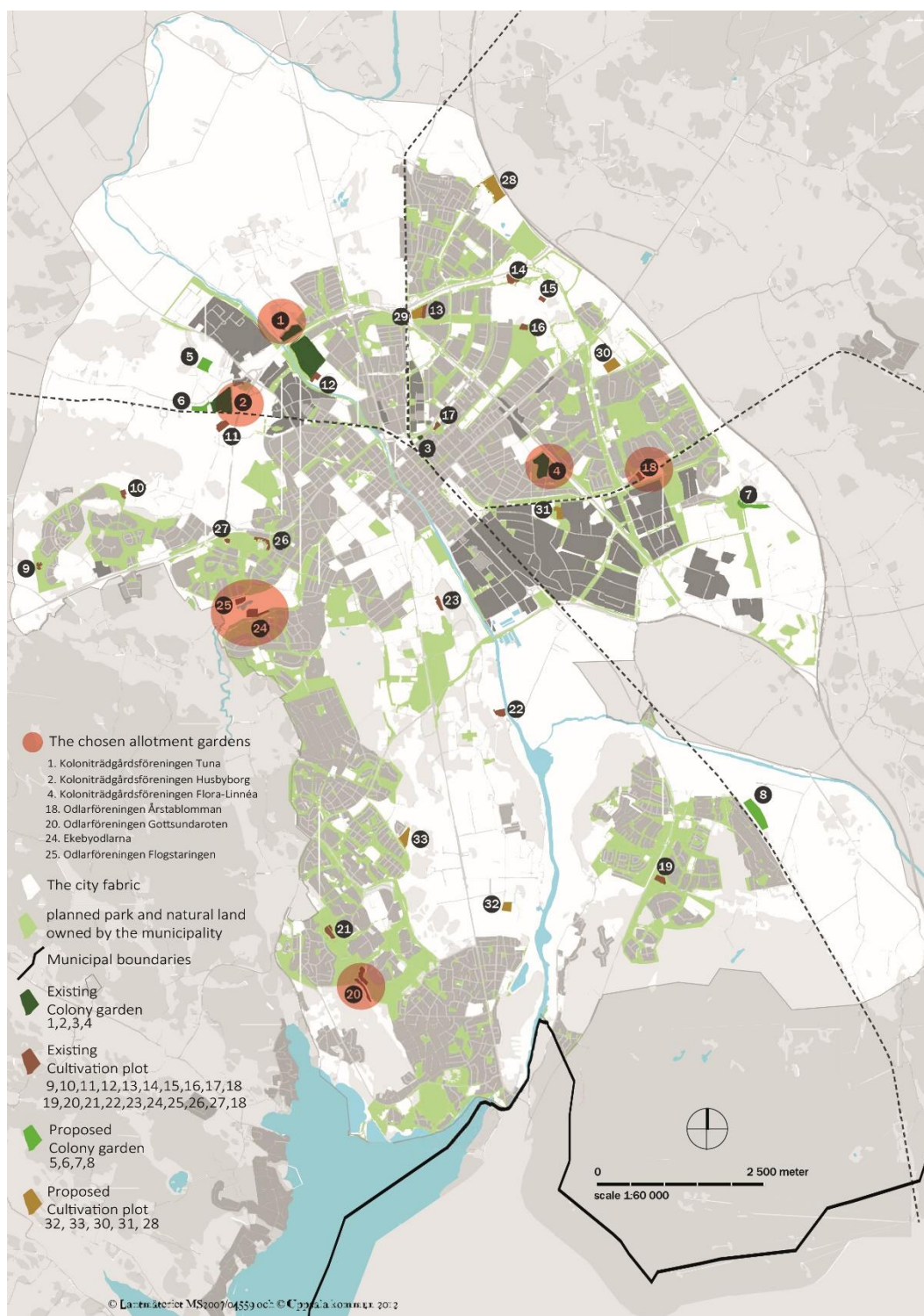


Figure 4. Map showing the chosen allotment gardens for the site study from the existing allotments in Uppsala, Lantmateriet MS2007/04559 and Uppsala Kommune 2012, modified by the author of this thesis.

4.2.2. Observation in Ekebydalen Allotment Garden

The observation is used to identify the current status of the Ekebydalen allotment garden in relationship to opportunities, strengths, weaknesses, and threats. The main focus of the observation activities is on the physical environment, uses, and activities as described in the observational research guide developed by MER-RIAM (1988). In the physical environment, observation involves observing and describing the gardening in the Ekebydalen allotment area and its surrounding.

4.2.3. Online Survey Questioner

The online survey questioner is conducted for the Ekebydalen allotment garden, a site chosen from the limited case studies as explained in section 4.2.1. In the Ekebydalen allotment area, there are 2 growers associations namely Flogstaringen and Ekebyodlarna association. Although Ekebydalen has 2 associations, the online survey sees the participants from both associations as part of one landscape, which is the Ekebydalen allotment area.

In the online survey asked, there are two parts. The first part of the survey is about the participant's common use and motives for activities in the allotment gardening practice.

The second part of the survey is about the participant's affective appraisals of specified places within Ekebydalen using the principles of the validated method Meerci™ developed in a licentiate and doctoral thesis by Lena Steffner (2004, 2009). The method Meerci™ method builds on 18 different positive or negative emotions in a circumplex model of affect researched by James Russell. The circumplex model is widely applied within the subject environment psychology (James A Russell 1980). This thesis does only partly implement the validated method Meerci™ as a whole.

The Participants are asked to mark what emotions they spontaneously remember in their associations with a specific place shown with photos. The participants then mention factors in the urban environment that affect their experience. A circle diagram describes the results in form of measurement of the affective appraisal. The diagrams show how many percent of the participants experience the environment as exciting, pleasant, and safe or its opposites; boring, unpleasant, and unsafe. The factors that are reasons for their affective appraisals are sorted into positive and negative reasons in the physical environment and uses (activities) in the place (Lena Steffner, 2009 *Evaluation of urban environments, a method to measure experience*).

The result from the online survey questioner should be able to tell me about the allotment garden as an activity, as a space (social and physical), and the use and functions of the environment that is appreciated in a certain way by the inhabitants.

4.2.4. Analysis of Results

The analysis result from the site studies and observation in Ekebydalen allotment garden employ both qualitative and quantitative data gained from existing statistics. The limited case studies are based on a descriptive analysis where Images and textual analysis is used to describe their particular phenomenon. The chosen site studies will be weighted on the pros and cons of their own attributed headings under which evidence is grouped.

From the Site studies, Ekebydalen will be developed into a draft proposal for land use for reasons that it is located close to central Uppsala and has the potential to develop as a popular recreational area with a district center. In order to identify the values, challenges, and shortcomings of the Ekebydalen allotment garden, an observation method followed by a SWOT analysis is applied. SWOT analysis is a strategic method developed by Albert Humphrey in the 1960s for understanding an environment by assessing its internal and external Strengths, Weaknesses, Opportunities, and Threats.

For the online survey questioner, Google form is used to summarise the participants response of part one. For the part two, the participants affective emotional appraisals of the five chosen urban environments of Ekebydalen are used to produce the diagram of emotional experience. This is done by entering the participants responses in excel sheet. The percentage is calculated by performing a function; the number notes per emotion divided by the total number of participants times 100.

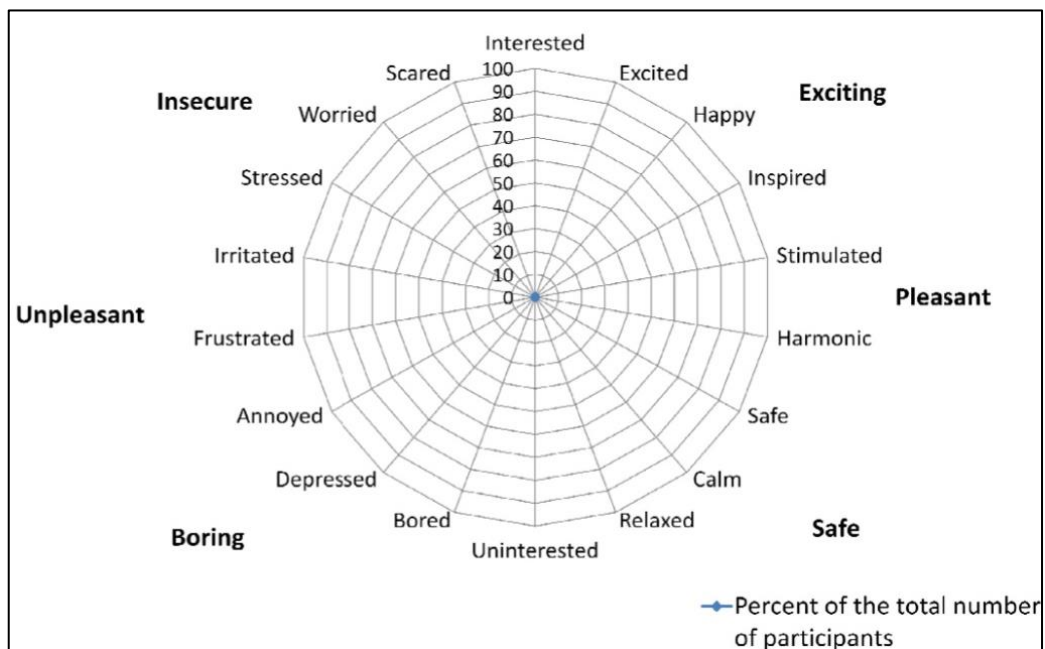


Figure 5. Diagram of emotional experience in different environments; Circumplex model by James Russell, scientifically validated in a doctoral thesis by Lena Steffner, 2009

5. Findings, Guidelines and Proposal

5.1. Presentation of Findings

In this chapter, I present the analyses in response to the collected data and describes the result in the study's findings. The main findings are used to formulate a guideline for a draft proposal for Ekebydalen allotment as an example of a planning strategy. The proposal suggests a sustainable conceptual design proposal for creating a new and reshaping an existing open green space in Uppsala city.

The results of the site studies are used for an overview analysis of the existing allotment gardens in Uppsala city. The results from observation, and the online survey data in Ekebydalen allotment garden are shaped to assess the relationship between the people's experience of the physical, social space and the motivations behind the involvement in the activities found in allotment gardening.

5.1.1. Result from Site Studies

The site studies' physical space is shown below in figure 8-13. The pictures below display their allotment garden's land use layout, size, and planning pattern. A sample picture on the left side is shown to represent the key elements in the allotment garden. These include trees, built structures, and their use of the physical landscape. The analysis of these case studies is summarised in table 2.



Figure 6. Site plan and a representative picture of Årstablomman allotment garden, by the author of this thesis



Figure 7. Site plan and a representative picture of Flora-Linnéa allotment garden, by author of this thesis



Figure 8. Site plan and a representative picture of Tuna allotment garden, by the author of this thesis



Figure 9. Site plan and a representative picture of Gottsundaroten allotment garden, by the author of this thesis



Figure 10. Site plan and a representative picture of Husbyborg allotment garden, by the author of this thesis



Figure 11. Site plan and a representative picture of Ekebydalen allotment garden (Ekebyodlarna and Flogstaringen), by the author of this thesis

Table 2. Summary analysis of the site study allotment gardens, by the author of this thesis

	Association Type	Cultivation type	Location and Size	Land Ownership	Queuing system	Uses/ Activities
Kolonirådsgårdsföreningen Flora-Linnéa	Founded in 1932,	Colony Gardens with cottage	The area consists of 103 allotments with an approximate size of 300-400 sqm per lot.	The land is owned by Uppsala municipality and leased by the association.	Does not apply.	There are three common houses for service in the area.
	Association Flora-Linnéa is a non-profit association		The cottages may be a maximum of 20 sqm but may have storage / free storage room next door.		They have an interest list that you can sign up for so that a member who wants to sell their allotment contacts you.	Floragården near Furugatan is the association house itself and there is a larger assembly hall with kitchenette that can be rented by the colonists for their own parties etc. In Linneagården there is a smaller common room and two toilets, and the third house contains a toilet and shower.
			The association's total land area is about 45,000 sqm, of which about 34,000 sqm is lots and the rest is parkland.			The association usually organizes popular joint parties for the colonists, including midsummer and late summer. Flea markets and various types of activities related to cultivation are also arranged.
Odlarföreningen Årstabblomman	Founded in 1985,	Cultivation Lots	The area holds 77 cultivation plots, most of them 60 square meters, but there are also some smaller plots of varying sizes.	The association rents the land from Uppsala municipality.	applies	Open land character, with no public facilities. Such as toilet and storage.
	The growers' association Årstabblomman is non-profit association					Growing, organic farming, and nature conservation practices.
Kolonirådsgårdsföreningen Tuna	Founded in early 1940,	Colony Gardens with cottage	There are 304 cottages (summer houses). Those cottages have an associated plot of usually just over 400 sqm.	The cottages are bought by the colonists while the land, which is owned by Uppsala municipality, is leased.	applies	Colony garden has plots with diversity of flowers, trees, shrubs and crops.
	Tuna colony association is an economic association					There are two pump houses that supply the plots with water from the Fyrisån river. A clubhouse, which is located in the middle of the area, houses showers, toilets, latrine emptying, laundry facilities, sauna and meeting room with large terrace. The meeting room also works as a party room and is rented out for this purpose.
Odlarföreningen Gottsundaröten	Founded in 1980,	Cultivation Lots	They have 227 cultivation plots distributed on the "sunny side" and the "forest side". Each cultivation plot is about 60 sqm.	They lease parkland on Gottsundagipen, which belongs to Uppsala municipality.	applies	Growing, organic farming, and nature conservation.
	The association was called Gottsundaröten but changed their name to Gottsundagipen in 2005.					The association does not have its own waste management
	A non-profit growers' association					The only constructions that are allowed are simple greenhouses which do not require a building permit. Maximum allowable area is 10 square meters. The maximum height allowed is 90 cm.

Koloniträdgårdsföreningen Husbyborg	Founded in 1984, Husby colony association is an economic association	Colony Garden with cottage	There are 98 cottage lots in the area. The plot area is approximately 400 sqm and on each lot, the municipality has granted a building permit for a building of 24 sqm, a storage of a maximum of 10 sqm and a small playhouse	leases an area of Uppsala municipality	does not apply	There are two hygiene buildings with showers and toilets and a clubhouse. Electricity and water pipes are routed to each plot boundary and the cottage owners have garden tours, there are also exhibitions, flea markets, cafés, and music events.
Ekebyodlarna	Founded in 1981, There are 2 different growers associations: Flogstaringen and Ekebyodlarna non-profit growers' association	Cultivation Lots	Ekebyodlarna association consists of 256 lots of 6 x 10 meters in Ekebydalen in Uppsala, between the districts Eriksberg and Flogsta. Flogstaringen association has an area with about 100 cultivation plots. Those cultivation lots are normally 6 x 10 m. Some lots have other dimensions but are still 60 m ² . There are also a few smaller tickets, 30 m ² .	Both associations rent the land from Uppsala municipality	Applies to both	Growing, organic farming, and nature conservation There are no toilets, storage spaces, garbage bins and other social infrastructures. The associations have activities related to gardening activity

The finding of the case studies shows two main categories of allotment garden (Allotment lot and Allotment lot with cottage/summer house, their cultivating land sizes range from 30 m² to 60 m² and 300 m² to 400 m² and are run by an association on non-profit and for economic profit respectively).

Thus, the allotment gardens chosen for the case studies are categorized into two based on the findings criteria. The main difference between those types of allotment gardens is in their uses and activities. The allotment gardens with an economic association have the opportunity to invite other residents of Uppsala to be part of the allotment experience by holding different activities that are inclusive to different age groups. However, the allotment gardens which are run by a non-profit association do not have this kind of opportunity. This is due to the lack of communal space for accommodating the different activities that can invite people other than the gardeners.

From the site studies, the Ekebydalen allotment garden, which has two associations sharing the same landscape is chosen for further study in this thesis. Thus, the results and analysis for the online questioners and observation are presented below.

5.1.2. Result from Online Survey Questioner

The online survey questionnaire consists two parts. Results from part one and part two of the online survey questioner is presented in this section.

Socio-demographic charcterstics of participants

Participants of Ekebyodlarna and Flogstaringen took part in the online survey between the time period from 15th Sep. to 15th Oct. In total, 40 people completed the survey questionnaire with a response rate of 100% of the 40 planned sample. From the total participants, 15 people were from Flogstaringen and 25 people from Ekebyodlarna allotment association.

As can be seen in Table 3, the majority of the respondents were female (77.5%) and, most of the participants were in the age range of 30-50 years old, i.e. the working population group. In addition, the majority of the participants (88%) reported as Swedish background and, over 90% a university degree and above.

Table 3. Overview of respondent characteristics (N = 40), by the author of this thesis

Demographic variables	option	percentage
Gender	Female	77.5
	Male	22.5
Age	18-24	2.5
	25-29	12.5
	30-39	27.5
	40-49	25
	50-59	7.5
	>60	25
Country of origin	Sweden	87.5
	Other	12.5
Social status	Single household	35
	Family with children	30
	Couple	35
Employment situation	Working	57.5
	Student	17.5
	Retired	22.5
	Unemployed	2.5
Educational background	High school	7.5
	University degree	92.5

Waiting time and proximity of allotment gardens (from both Ekebyodlarna and Flogstaringen associations)

Longer waiting periods to get an allotment garden is among the concerns that are frequently raised in Ekebydalen. Plots only become available when existing tenants either give up their plot or have their tenancy ended for breaking the rules and this turnover is not constant. Thus, when a tenant leaves a plot, it'll be offered to the next person on the waiting list. And when the number of applicants reaches the same as the total number of plots on the site, the waiting list is closed. When the number of applicants goes down, the list is re-opened.

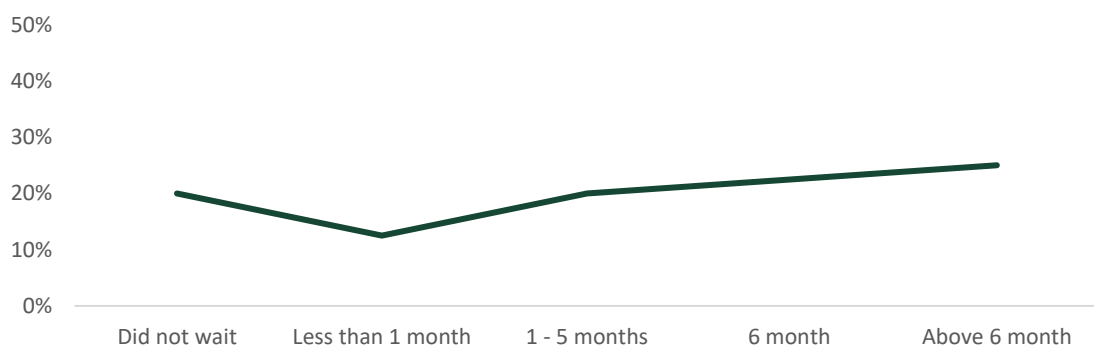


Figure 12. Waiting time for renting allotment garden in Ekebydalen, by the author of this thesis

The figure above shows around a fourth of the participants reported having waited for more than 6 months in the queue for renting an allotment garden in Ekebydalen. The graph shows that the proportion of participants increases with an increase in the waiting time.

It should be noted that the downward slope at the beginning of the graph is due to the increase in participants that did not wait in a queue in order to rent an allotment. They got their allotment garden from Ekebyodlarna koloniförening at the very first beginning in 1980 and the association started to grow in 1081. In addition, there was no queue for an allotment in the "Flogstaringen growers association" in 2008. Thus, the participants who did not wait for renting an allotment garden are those who joined at the very beginning. This shows that there are still participants that have an allotment garden even when the associations started long ago and before a queue system was started.

The proximity of the allotment garden was another important factor for gardeners. The majority of the participants (around 90%) in this study reported that it takes them less than 15 minutes to the allotment garden. In other words, the majority of the people that have rented an allotment in the Ekebydalen are from the nearby Kommun (Ekeby). In terms of the means of transport used to go to the allotment area, using cycle was reported by the majority of the participants followed by walking.

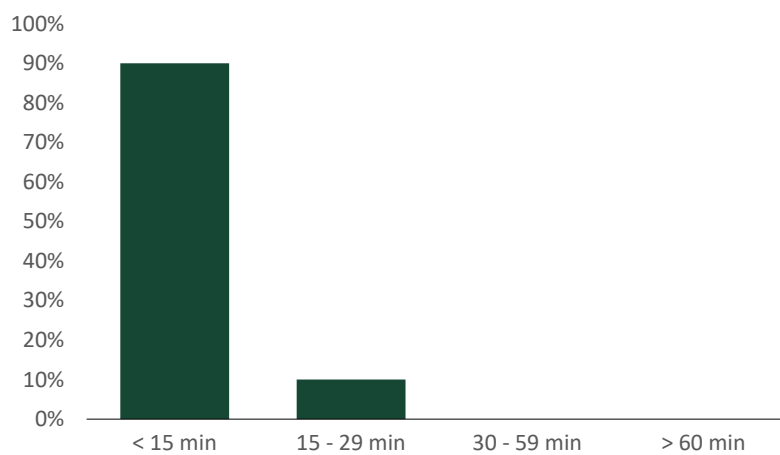


Figure 13. Proximity to allotment garden from participants home, by the author of this thesis

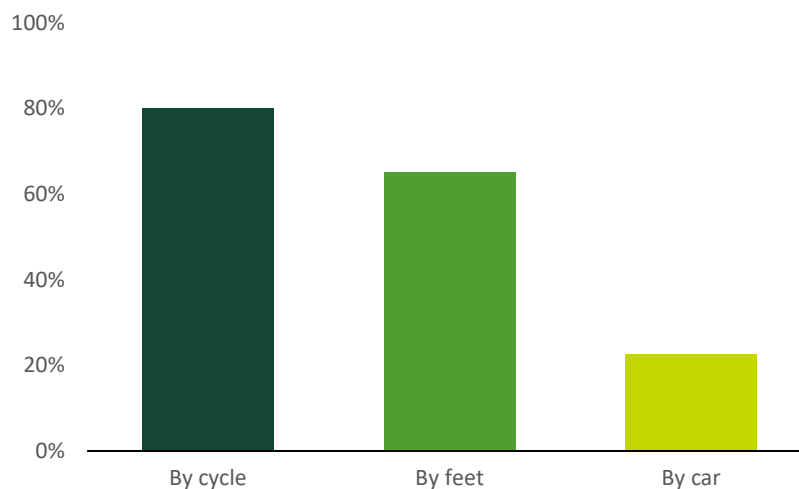


Figure 14. Means of transportation to allotment garden from participants home, by the author of this thesis

Common activities and perceived benefits of participants in the Ekebydalen allotment garden from both Ekebyodlarna and Flogstaringen associations

Regarding what the participant-led into renting an allotment garden, when the participants were asked for their reasons; almost all of them reported that garden and nature interest is their primary reason, followed by wellbeing and, food complement. This is illustrated in the graph below (Figure 17). The participant's perceived benefits from gardening are categorized into 4 distinct categories namely garden and proximity to nature, food compliment, social, and wellbeing benefits. (see table 5. For the participant's sample response).

The participants have also reported a diversity of activities that they do during their time on the allotment garden. The activities are summarized and categorized into five distinct categories namely growing, gardening, doing physical activity, to get exposure to nature and social activity. (see table 5). Doing such activities in their garden, around half of the participants reported that they spend between one to five hours per week and one-fourth of the participants said they spend between six to ten hours per week.

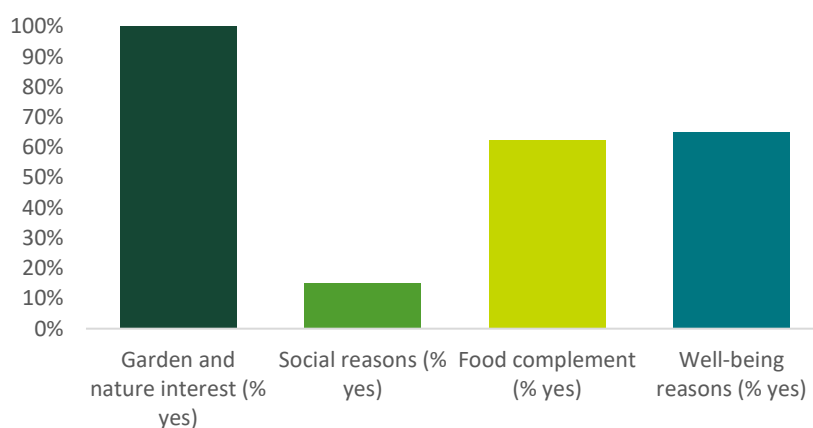


Figure 15. Reported reasons for renting allotment gardens (NB: participants were allowed to choose more than one reasons hence total percentage exceeds 100), by the author of this thesis

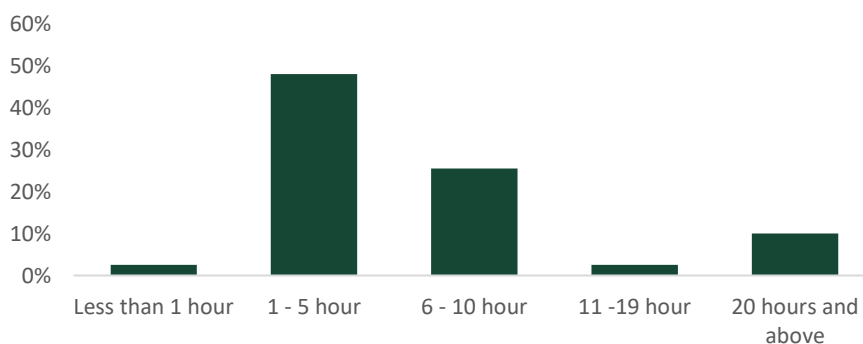


Figure 16. Average number of hours spend on allotment garden per week, by the author of this thesis

Table 4. Benefits of having an allotment garden as reported by participants, by the author of this thesis

Benefits	Example of participant's response (In quotation)
Garden and proximity to nature	The opportunity of spending time outdoors.
	The feeling of having a garden.
	A place to go to.
	Joy of working.
	Better opportunities to grow things despite living in a flat.
	To be able to grow my own vegetables even though I don't have my own garden.
Food compliment	Teaching my kids about where food comes from.
	It is nice to eat food I produce myself.
	Cheaper food and most often of better quality than in the stores.
Social	Getting out seeing people, opportunities to socialise, community, a sense of belonging.
Well being	Peacefulness and a nice thing to do on my spare time, but also stress release with three children at home and hard to find time to.
	Enjoying silent moments outside with coffee on my bench. I am working fulltime and have children and I need to rest outside by myself.
	I clear my mind and walking outside more often.
	It gives me sense of purpose, relaxation, and Calm serenity.
	Better physical and mental health with outdoor activity.

Table 5. A summary list of activities done on the allotment garden as reported by participants, by the author of this thesis

Activity	Example of activity
Growing	Growing Vegetables, berries, potatoes, and asparagus Grow herbs and flower beds
Gardening	Digging, weeding, fertilising, planting, watering, and harvesting
Physical activity	Walking, running, jogging, play with dog, bird watching, reading, sitting,
Exposure to nature	Relax, Sunbathing, enjoy aromatic plants and herbs, enjoying fresh air, Enjoying silent moments outside with coffee on my bench

Social activity	Meeting people, picnicking, chatting with other allotment gardeners, Socialize with friends and family, Association's activities
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Social and Physical space Experiences of participants in the Ekebydalen allotment garden

The participants were asked for their opinion on the attractiveness of the Ekebydalen allotment garden to different age groups to understand if the environment and activities done here can fit all age groups. 80% of the participants responded yes. However, a significant number of participants, around one-fifth of them, do not think so as motivated by the absence of communal activity and lack of toilets close by, limited physical space for kids to play, and the difficulty to access for people with disability.

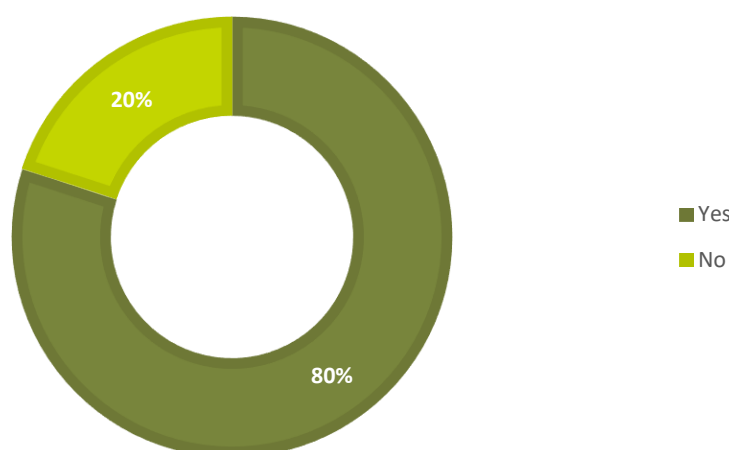
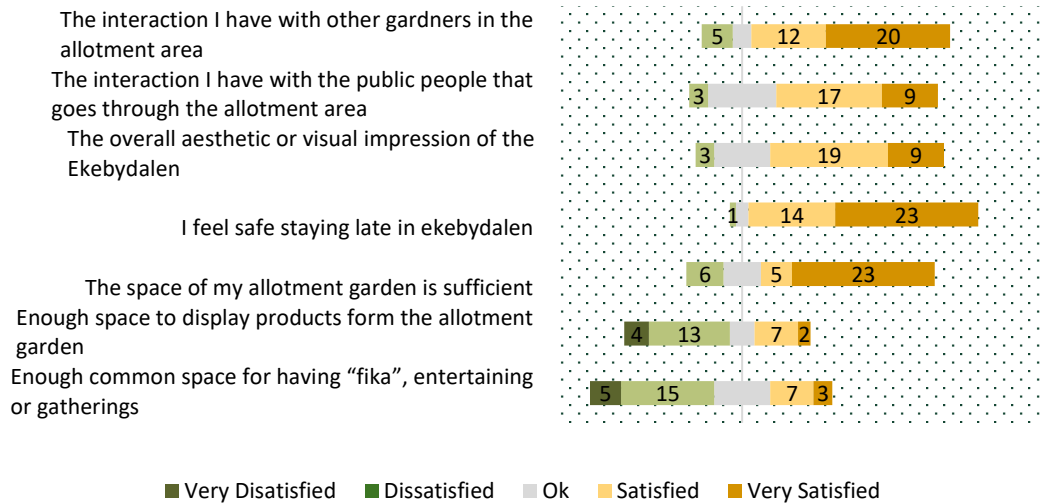


Figure 17. Participants respond to the overall Physical space of the Ekebydalen environment inviting different age group of people, by the author of this thesis

To learn the satisfaction and experiences of the participants, a Likert scale-based questionnaire on seven variables was included in the survey and the results are illustrated in figure 20 (see below). In regard to the interaction they have with people passing by and other allotment owner's majority of the participants feel satisfied or very satisfied. Likewise, great satisfaction and positive experiences are reported regarding the overall aesthetics, safety, and sufficiency of the allotment area owned.

However, it is clearly visible in the graph shown below that, majority of the participants reported negative experience or dissatisfaction on the subject of the sufficiency of the allotment garden to display or sell gardener's own grown



vegetable products from the allotment garden, or a space to have Fika and other social gatherings in the Ekebydalen allotment garden.

Figure 18. Experience of the participants on the Physical and Social space of Ekebydalen, by the author of this thesis

Furthermore, in order to understand the participant’s perception of their environment, Participants were asked to mark what emotions they spontaneously remember in 5 different environments: (Pond, Pedestrian and bike paths, Common furniture, constructions like bridge, fences, and shed, and lastly Maintenance of grass, weeds. And water stream). Those environments are believed to represent the character of Ekebydalen. Participants were allowed to choose more than one feeling they associate the environments with hence total percentage exceeds 100).



Figure 19. Map covering the five chosen urban environments with in ekebydalen, Google map, Modified by the author of this thesis

1. Pond



Figure 20 A representative picture of the Pond within Ekebydalen, by the author of this thesis

The results below (figure 23), show that 75% of the participants feel that the pond is in harmony with the character of the Ekebydalen allotment area. The presence of the pond is associated with feelings of being calm, relaxed, and interested. As can be seen in the graph, the participant's response leans towards the positive feeling side. Thus, the pond is an important element that is part of Ekebydalen character. The water feature is positioned in the center siding both growing associations in Ekebydalen. The participants that associated their feelings with a positive are happy with the activities and uses the pond provides to them, their dogs, and birds throughout the different seasons.

The participant's reasons for their feelings are summarised in table 6. The reasons for their affective appraisals are sorted into positive and negative feelings and into activities and the physical environment of Ekebydalen.

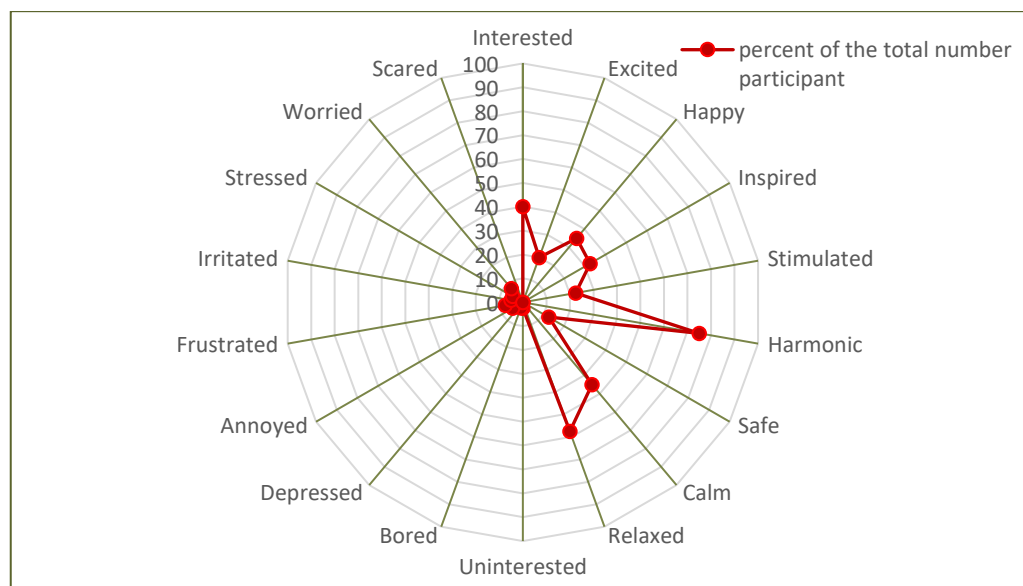


Figure 21. Diagram of participants emotional experience in the Pond, by the author of this thesis

Table 6. Respondent's reason for their affective feelings towards the Pond, by the author of this thesis

	Positive feeling	Negative feeling
Physical environment	“water is relaxing, it is also interesting to see how the area changes over time and from season to season.”	“when weeds grow around the pond, the view is not good”
	“It is a wide, open place where you can see much nature, sky and clouds and not houses and many people”	“I am frustrated because I can't access it.”
	“It resembles the ideals of the English garden and it gives the area an essence of romance”	“The birds are becoming less now because of poor maintenance and negligence.”
	“In 1953 i had a short job at Ekeby handling tiles, (kakerl)The clay came from here!”	“There is no access to sit near it and watch the birds.” “It has contaminated soil.”
Uses (activities)	“When I was young, I used to be a bird watcher and the environment reminds me of those times. I feel at home in that kind of environment.”	
	“Ice Skating on the pond in wintertime”	
	“Dogs swim in the pond”	
	“Taking walks around the pond”	
	“Went ice skating there as a kid.”	

2. Pedestrian path and bicycle paths



Figure 22. A representative picture of the pedestrian and bicycle paths within Ekebydalen, by the author of this thesis

55% of the participants are happy and think that the paths for pedestrians and bicycles are in harmony with the character of the Ekebydalen allotment area. The experience is associated with feelings of being stimulated, relaxed, and calm. As presented in figure 25 (see below), the participant's response leans towards the positive feeling side. The participant's reasons for their feelings are summarised in table 7. The reasons for their affective appraisals are sorted into positive and negative feelings and into activities and the physical environment of Ekebydalen.

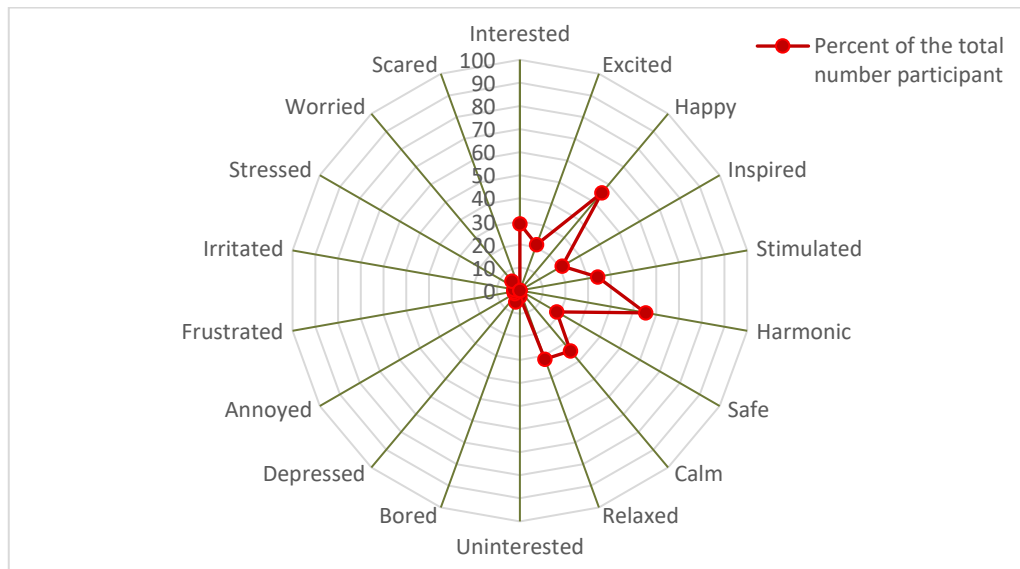


Figure 23. Diagram of participants emotional experience in Pedestrian and bicycle path, by the author of this thesis

Table 7. Respondent's reason for their affective feelings towards the pedestrian and bicycle paths, by the author of this thesis

	Positive feeling	Negative feeling
Physical environment	"it is a place where you are close to nature, very calm and can see widely around and not see houses and people"	"There is too much noise from the surrounding traffic to be relaxing and enjoyable."
	"A sense of happiness when arriving."	"They lack maintenance"
	"I like the paths movement and looks in harmony with nature"	"All the paths do need to be filled with much more gravel to stop the erosion! "
Uses (activities)	"Nice biking routes, I like that there is no asphalt (no regular "road")"	
	"It's fun when the branches and foliage just precisely cover one's head so that you feel like walking through an arch or tunnel."	"A bit bumpy with the bike"
	"I usually run and work out here."	It is not that comfortable to jog in the gravel material."
	"I like to walk along the paths"	"Hard to walk and ran in them. In bad condition for those who are disable."
	"A very nice tiny path to slowly travel along by bicycle."	

3. Common Furnitures



Figure 24. A representative current state of the common furniture in Ekebydalen, by the author of this thesis

The results from figure 27, show that 40% of the participants are uninterested in the current state of the common furniture in ekebydalen. The experience they had with the common furniture is associated with feelings of being annoyed and frustrated. At the same time, the figure also shows the participant's feeling relaxed and calm. This shows that even though most of the responses have a negative feeling towards the maintenance and use of the furniture shown in figure 26. The participant's reasons for their feelings are summarised in table 8. The reasons for their affective appraisals are sorted into positive and negative feelings and into activities and the physical environment of Ekebydalen.

It should be noted that there are 2 different growers associations within Ekebydalen: Flogstaringen and Ekebyodlarna (north and south of the pond respectively). Some of the furniture shown in the pictures have been placed there by the Uppsala municipality. Others, like the wooden sofa in the middle photo at the top, has been built and paid for by members of Flogstaringen.

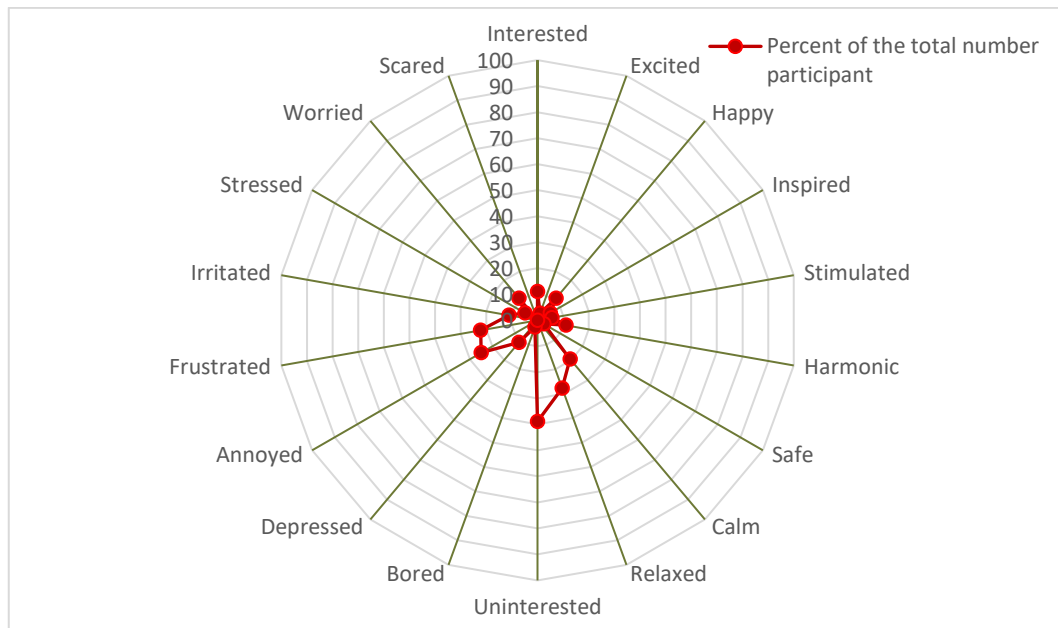


Figure 25. Diagram of participants emotional experience in the common furniture, by the author of this thesis

Table 8. Respondent's reason for their affective feelings towards the common furniture in Ekebydalen, by the author of this thesis

	Positive feeling	Negative feeling
Physical environment	<p>“Placed in the ultimate spot. Facing south, underneath the birches and close to the allotments.”</p> <p>“The wooden benches are nice to see”</p>	<p>“some of the furniture look old, broken, forgotten and rusty.</p> <p>“Those that are okay are not sufficient”</p> <p>“ If we had more common places there would be more rubbish to clean up and I prefer to do gardening instead.”</p> <p>“The grey and rotten furniture in the pictures are a good example of how uninterested the municipality is in taking care of its own furniture”</p> <p>“The municipality has no interest in listening to us who are active in Ekebydalen and act upon our creative suggestions”</p>
Uses (activities)	<p>“A place for friends and coffee”</p>	<p>“Uncomfortable to sit”</p>

4. Constructions like bridges and fences



Figure 26. Current state of the construction of shelter house, bridge and fences in Ekebydalen respectively, by the author of this thesis

The results from figure 29, show that 35% of the participants are happy with the experience for the environment as Harmonic, happy, and are happy with the construction of bridges and fences for the space where they keep the animals. However, some of the participants are frustrated with the red shed. The participant's reasons for their feelings are summarised in table 9. The reasons for their affective appraisals are sorted into positive and negative feelings and into activities and the physical environment of Ekebydalen.

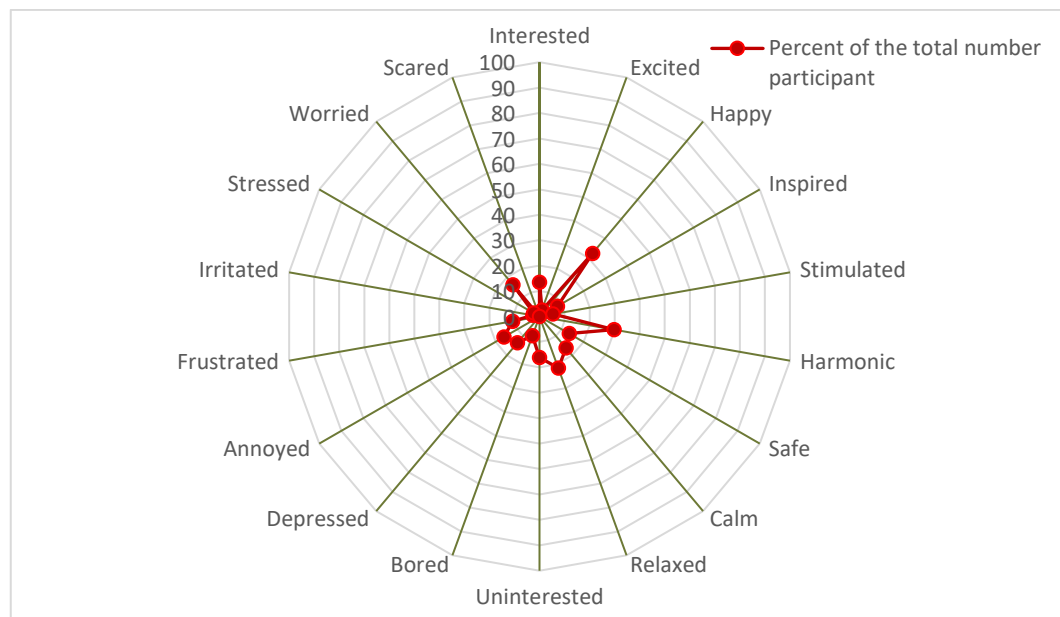


Figure 27. Diagram of participants emotional experience in the current status of the construction of bridge, fence and the red shelter house, by the author of this thesis

Table 9. Respondent's response for their affective feelings towards the construction of bridge, fence and the red shelter house, by the author of this thesis

	Positive feeling	Negative feeling
Physical environment	"Placed in the ultimate spot. Facing south, underneath the birches and close to the allotments."	"some of the furniture look old, broken, forgotten and rusty. And those that are okay are not sufficient"
	"The wooden benches are nice to see"	" If we had more common places there would be more rubbish to clean up and I prefer to do gardening instead."
	"Nice to have animals around."	"The grey and rotten furniture in the pictures are a good example of how uninterested the municipality is in taking care of its own furniture"
	"I like the rural environments, that it is not like a park. Especially, I like when the cows are in the area. I see deer's, rabbits, eagles and a lot of other birds because of the rural landscape."	"The municipality has no interest in listening to us who are active in Ekebydalen and act upon our creative suggestions"
Uses (activities)	"A nice place to sit and for friends and coffee"	"the shelter is often used by people who leave dirty things and garbage"
	"Feeding birds from the bridge when the kids were little, watching sheep"	"some of the older allotment holders can feel threatened by groups of young people that hang out in the shelter."
	"Travelling across a bridge is a bit of an adventure, will it hold and what will I find on the other side. also, what will I be able to see from the bridge..."	"The red building with graffiti attracts people that disturbs the peace in the valley"
	"The "shed" is good for when it rains"	

5. Maintenance of weeds, grass, water stream, and garbage



Figure 28. A representative picture of environments showing overgrown weeds, grass, water stream, and garbage, by the author of this thesis

The results from figure 31, show that 50% of the participants experience the environment as Irritating, annoyed, and are frustrated with the maintenance of weeds, grass, water stream, and garbage. This shows that most of the responses have a negative feeling towards the maintenance of the environment shown in figure 30. It should be noted that the hiring contract of the allotments from the Uppsala municipality depends on if the association can keep the area tidy.

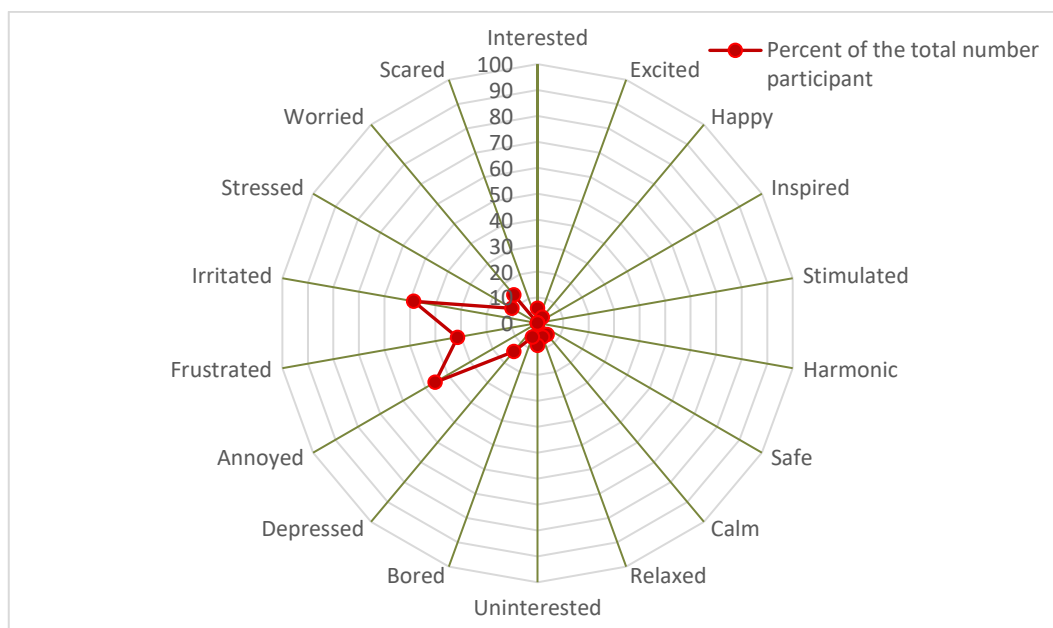


Figure 29. Diagram of participants emotional experience in the maintenance of weeds, grass, water stream, and garbage in Ekebydalen, by the autor of this thesis

The lack of maintenance in Ekebydalen has a negative influence on the gardeners. Because there is no schedule, some of the gardeners try to clean and pick up garbage in the common areas even though it is not their responsibility. But even that is not enough to maintain Ekebydalen. A participant said “Other members want us on the board to be more like police or guards, but we cannot do that, and will not. We are already putting a lot of our free time in working for the community.”

Table 10. Respondent’s reason for their affective feelings towards the maintenance of weeds and garbage in ekebydalen, by the autor of this thesis

	Positive feeling	Negative feeling
Physical environment	“The maintenance of weeds is sort of insignificant due to the character of Ekebydalen.”	“Sometimes the area looks like a dumping area instead of an allotment area.”
		“rubbish in nature is a risk for animals being hurt, but also a risk for polluting the environment”
		“Always sad to find garbage where it does not belong, does not align with the eco-friendly community here”
Uses (activities)	“The animals that usually graze the fields does plenty of good work with the maintenance of weeds.	“About the garbage and weed: It's up to the Uppsala municipality to maintain the areas of Ekebydalen. We citizens pay HIGH taxes and we expect the municipality to act.”
		“Some people seem to have difficulties in understanding or respecting our rules, no clear signs of what not to do in the place.” “The lack of trash bins”

Participants overall suggestion for enhancing Ekebydalen

The last part of the online survey questioner was an open-ended question where participants can write their own ideas for the better usage of the Ekebydalen urban environment. Thus, table 11. summarises participant's suggestions and improvements for future use of Ekebydalen allotment area. Their suggestions are categorized into four main terms according to their nature and character. These are the Uses and activities, Physical environment, maintenance, and communication. The participant's suggestions are used as a basis for a proposed development for the future use of the Ekebydalen allotment area.

Table 11. Respondent's suggestion for future improvement in Ekebydalen, by the autor of this thesis

Categories	Summary of participant's suggestion
Maintenance	For Uppsala municipality to get involved. one participant said that "The allotments there were evacuated some years ago because of lead in the soil and since that the Uppsala municipality have had difficulties in remembering cutting the grass and keeping it nice. It has been some kind of waste land with a lot of weeds." So, Cleaning and cutting weeds outside the allotment and in the pond more frequently.
	To compost/sort things from the allotment in the area. One participant said that "because Many of us don't have access to transport from the allotment and that makes some allotments have a lot of garbage. (like mine from time to time). "
	Protection from trespassers and thieves that steal tools and harvest from the allotments.
	To repair the sitting and other furniture's that are out of shape
Communication	To have information (about the history, what to do and not to do) sign bords in Ekebydalen area.
	To have more communication with the town administration, Uppsala municipality. One participant said that "Uppsala municipality MUST contact us growers' associations, because we are active in the area and we know the place. And, we have a lot of creative thoughts about how to develop Ekebydalen in a positive way. "
Physical environment	To keep the character of Ekebydalen. One participant said that "I wouldn't like it to be more park-ish since I like it with cows and sheep and all that..... I like that it's somewhat wild and that there are paths without lighting."
	To plant more trees towards Eriksbergsvägen and add more allotment gardens. One participant said to "open up for more allotment gardens to the west, instead of just an empty field with absolutely no use."
	To add more gravel for the pedestrian and bicycle paths so they can be comfortable to run in, jog and walk through. At the same time for the pond to be more accessible visually and physically.
Uses (activities)	To create a space for social activities. For example, play space for children, outdoor(natural) gym, recreation area, sitting benches for having fika, a barbecue, and to create a space for concert or small event where they can trade knowledge and showcase what they have grown.
	To add toilet, a big bin for garbage and a complementary fruit garden where they collectively take care of the trees and harvest the fruit.

5.1.3. SWOT Analysis of Ekebydalen Allotment Environment

Ekebydalen's physical environment analysis by considering the site's strength, weakness, opportunity, and threat as observed in a field study are listed below. The swot analysis is used as bases for the guidelines and further in the proposal.

Table 12. Swot analysis for ekebydalen allotment area, by the autor of this thesis

Strengths	Weaknesses
<ul style="list-style-type: none"> • Natural values – bird species, Waterbody (Pond), Biodiversity value with old pine • Urban agriculture value - Allotment plots • Two of the city's Linnaeus Trails are located in Ekebydalen • Rural landscape character • Animal life – with dog leash areas • Continues connection to Arosparken • Mosaic landscape character 	<ul style="list-style-type: none"> • Water pollution and poor utilisation of the pond • Poor stormwater management with partly lacking Surface treatment • Unclear and weak connection of pedestrian and bicycle paths • Poor connection of the two allotment areas within Ekebydalen • Open landscape character – too many and unclear entrances to Ekebydalen • No garbage bins and parking for bicycles
Opportunities	Threat
<ul style="list-style-type: none"> • Landscape Ecological connection between two nature reserves, Hågadalen-Nåsten and Stadsskogen • Ekebydalen is Proposed as a recreational district center by Uppsala municipality • Ekebydalen acts as a traffic connection to surrounding neighborhoods for pedestrians and cyclists. 	<ul style="list-style-type: none"> • Urbanisation could lead to improper utilisation of the green space in Ekebydalen • Seasonal climate change – the change influences the use of the landscape and the activities that take part



Figure 30. Ekebydalen allotment garden and its surrounding environment, by the author of this thesis



Figure 31. "Animal grazing and the pong subsequently", Example of the streangth and potential of Ekebydalen allotment garden's surrounding environment, by the author of this thesis

5.2. Interpretation of Main Findings

The site studies have given insights into the characteristics of allotment gardens in which the study found two main categories of allotment gardens in Uppsala city. The first one is an Allotment garden with cottage/summer house with cultivating land sizes ranging from 300 m² to 400 m². Those types of allotment gardens are run by an association for economic profit. The second type is an Allotment garden without cottages. Those types of allotment have a cultivation land size ranging from 30 m² to 60 m² and are run by a non-profit association.

The study has found from the online survey that the majority of the participants wait in line to get an allotment plot for over six months. Regarding the proximity of allotment gardens, participants reported living within a 15 minutes biking distance with the majority reporting using bikes to go to their gardening places. The high waiting time is potentially due to the shortage of open spaces for allotment and the use of open potential gardening places for urban settlements. This is also reflected by the participants of this study that some have reported that their former allotment gardens were evacuated due to the polluted soil that it cannot be used for gardening.

Gardening, physical activities, nature exposure, socializing, and vegetable growing are activities that are commonly practiced in the allotment garden. Of these, Gardening, and nature interest (100%), socializing (15%), food complement (62%), and maintaining wellbeing (65%) are reported to be the motivation for and practiced activities by the participants in this study. The majority of the participants (48%) reported spending between 1-5 hours per week while doing the aforementioned activities. These conclusions reflect the fact that the allotment garden in Ekebydalen is utilized daily for cultivation and production activities. One of the participants said that she uses the allotment garden in order to grow her own vegetables despite living in a flat and doesn't have her own garden. Another participant has expressed that she benefits from cultivating because she gets "Cheaper food and most often of better quality than in the stores".

80% of the participants reported that they perceive the Ekebydalen allotment garden to be an attractive place. The majority of participants are interested in the animal feature of Ekebydalen, as they reflect the typical landscape of their experience, conventions, and values in connection with their past memories on the rural landscape. For example, one participant said, "I like the rural environments, that it is not like a park. Especially, I like it when the cows are in the area. I see deer's, rabbits, eagles, and a lot of other birds because of the rural landscape." Another participant also expressed the visual impression of Ekebydalen as it "resembles the ideals of the English garden and it gives the area an essence of romance".

The participant's perception of the Ekebydalen landscape was also reflected in the Likert scale-based question in which the majority reported a positive experience in the aesthetic aspect and visual impression. The negative experiences reported are connected to the physical space of the allotment garden. Such experiences are due to but not limited to the size of the allotment, the absence of sufficient space to display their products, and for social gatherings. One participant for example said that "The space for the allotment is 50-60-meter square. we need more space to garden. opening up for more allotment gardens to the west, instead of just an empty field with absolutely no use."

The majority of the participants reported that the allotment garden and its surroundings are suitable for all population groups. However, around 20% of the participants have also claimed that the area may be inconvenient for some people like people with disabilities and minors. This is potentially due to the absence of nearby toilets, difficulty (physical) to access for disabled individuals, and lack of other activities to engage the children besides gardening. One participant for example said that "All the paths in Ekebydalen need more gravel now because they are eroding! It's important that people can walk around here safely, especially for people with disabilities."

Furthermore, this study also examined the participant's perception towards the different existing infrastructures (Pond, pedestrian and bicycle path, common furniture, constructions like bridges and fences, and the maintenance of weeds, garbage). The conclusions of the study revealed that 55% of the participants are happy with the Pedestrian and bicycle paths within Ekebydalen. For example, one participant said that "It's fun when the branches and foliage just precisely cover one's head so that you feel like walking through an arch or tunnel." On the contrary, the other 45% have reported a negative experience. The reasons reported by the participants can be grouped into reasons connected to the physical environment (e.g. too much noise, lack of maintenance, soil erosion) and the activities (inconvenience of the area for biking, walking, etc).

The current status of the common furniture within Ekebydalen is not adequately supported by the participants. 40% of the participants have reported a negative experience. The reasons connected to the physical environment (not sufficient, lack of maintenance,) and the activities (uncomfortable to sit). It is, therefore, necessary to upgrade some of the furniture and their features that are in poor shape. This indicates that there should be an emphasis raising the public's awareness of the importance of keeping the Ekebydalen environment clean and in good condition. Results from observation show that Ekebydalen environment has the presence of a mosaic landscape character, cultivation landscape, open field landscape, fissure valley landscape, and animal husbandry.

5.3. Guidelines on Basis of Main Findings (Design Strategies)

On basis of the main findings, this thesis suggests strategies for the future use of Ekebydalen as an urban district for recreation and cultivation use (Urban Cultivation Park). These strategies partially build upon the Uppsala Municipality's Policy for Sustainable Development (2014). The policy describes a long-term sustainable environment characterized by positive dynamics, openness, and shared responsibility where Uppsala residents are involved in the development of society and have confidence in democracy (Uppsala municipality 2014).

This thesis points to three strategies. These are diverse activity, Cross-functional use, and maintenance of infrastructures. These strategies should be able to integrate different age group users as they continue cultivating, working, and enjoying nature in Ekebydalen. At the same time provide a cross-functional use that can accommodate and integrate new developments with existing activities and structures of the area. Structures might include street networks, pedestrian and bi-cycle networks, allotment gardens, and sitting places. The existing infrastructures in ekebydalen and the surrounding environment can be seen in figure below.

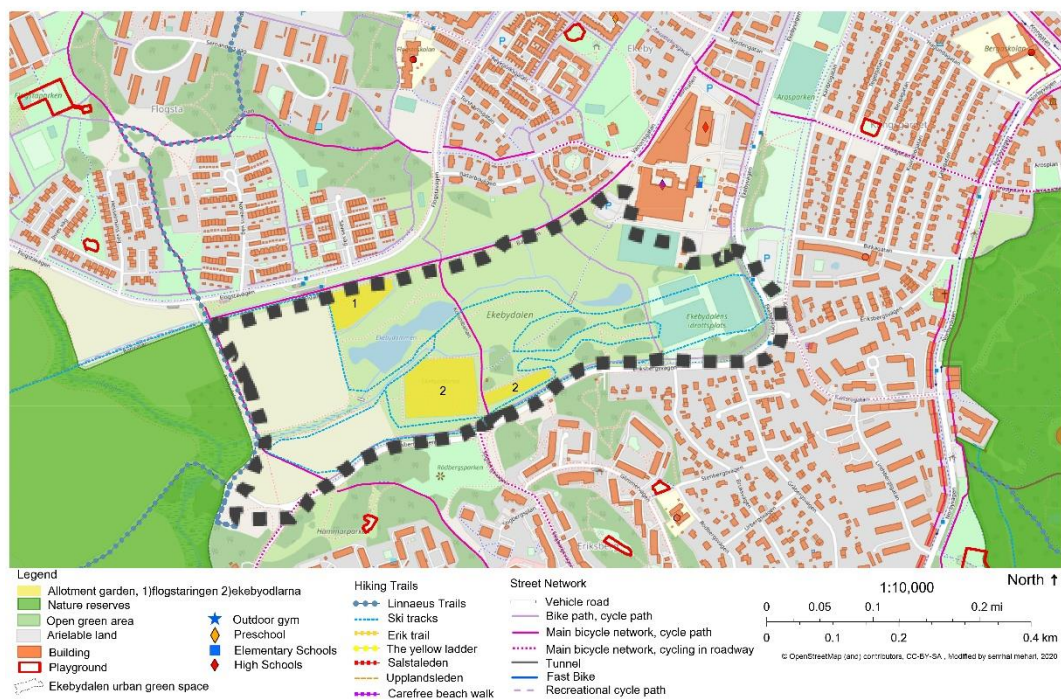


Figure 32. Existing infrastructures around and within ekebydalen allotment, Uppsala municipality park plan, adapted by the author of the thesis

Diverse Activity

Creating spaces that encourage both passive and active leisure. With passive leisure defined as effortless activities that place no demands on the individual (Demerouti et al., 2009; Kleiber, Larson, & Csikszentmihalyi, 1986) and active leisure as activities that require some effort. Passive recreational activities – camping, bird watching, picnicking, walking, bicycling, fishing, jogging, observing, and photographing nature.

Active recreational activities - Social leisure, where the primary focus is socializing with family and friends; Cognitive leisure, where the focus is on hobbies, games, and other mentally stimulating activities; and Physical leisure, which encompasses sports and exercise. For example, outdoor gym and play spaces for children. The spaces for these activities need to be built where there is the opportunity to play in nature. The desirable areas should be adapted with the existing infrastructures, topography and complement the existing landscape character, content, scale, and design of ekebydalen.

Cross-functional Use

Creating a shared use open green space will create a shared governance over the green space. The spaces to be introduced should be used for amenities, recreation, meetings, and other social activities. The functions should be different from each other, but they ought to have a cross-linking use of one another. This could be achieved by introducing 4Hfarm, creating space for an additional garden that is open to the public (could be achieved by planting fruit trees and berry bushes). Creating those common farm/garden beside the allotments will help connect gardeners and the public people in the use of these activities.

Maintenance and Access of Infrastructures

Infrastructures in Ekebydalen may include common furniture, pond, garbage, weeds and pedestrian and bicycle path. The paths within ekebydalen are important urban spaces that should be designed on the human scale for both movements, accessibility. A street structure that uses and develops the landscape as a movement link that prioritizes walking and good accessibility.

In Universal Design Index, there are six aspects to rate accessibility i.e. connectivity (15%) accessibility (25%), usability (20%), safety (20%), integrated design (10%) and operation and maintenance (10%) where the passing score is 65% (Dalilah, 2011). Thus, by Universal design, creating clear proximity and a safer space that is advantageous for children and the elderly. It should be easier to orientate, move in, and access the area, regardless of whether you move in-between the allotment gardens or along with the paths.

The existing and new paths should be designed when needed for clear proximity and a safer space that is advantageous for children, the disabled, and the elderly by universal design. It is also important to improve access to the existing infrastructures. Such as, access to the allotment gardens and to the pond.

5.4. Planning Proposal on Implementation Area

In Uppsala municipal park plan (2013), Ekebydalen is pointed out as a green area with high natural values, many social values, and recreational values and which form an important part of Uppsala's green and blue structure. In addition, ekebydalen is located in the western parts of Uppsala, about 3 kilometers from the city center. Which makes it situated between two nature reserves, Hågdalen-Nåsten and Stadsskogen, both of which have high ecological values.

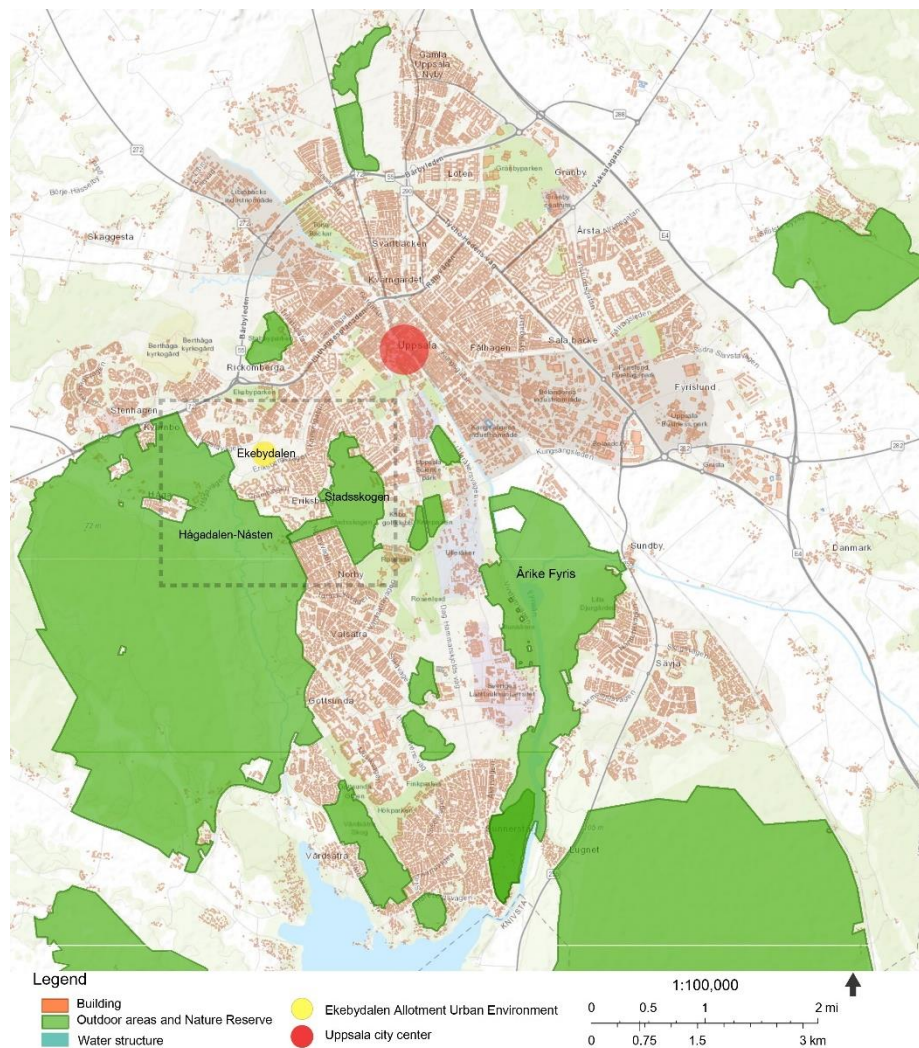


Figure 33. Location of Ekebydalen allotment in respect to Uppsala city's green, blue structure, and urban fabric, Uppsala municipality park plan, adapted by the author of the thesis

Accordingly, this thesis suggests connecting the blue-green infrastructure of the nature reserve area and Ekebydalen landscape. The connectivity between stands on the basis of ecosystem services. A thesis paper written by Sara Rydeman och Ellinor Scharin (2016) has identified Ekebydalen's ecosystem service as Supply, supporting, regulating, and cultural. Thus, this thesis acknowledges them as important factors for long-term sustainability, and that they should be included when prioritizing stands for conservation or management qualities of ekebydalen that contribute to social activities and well-being of urban residents.

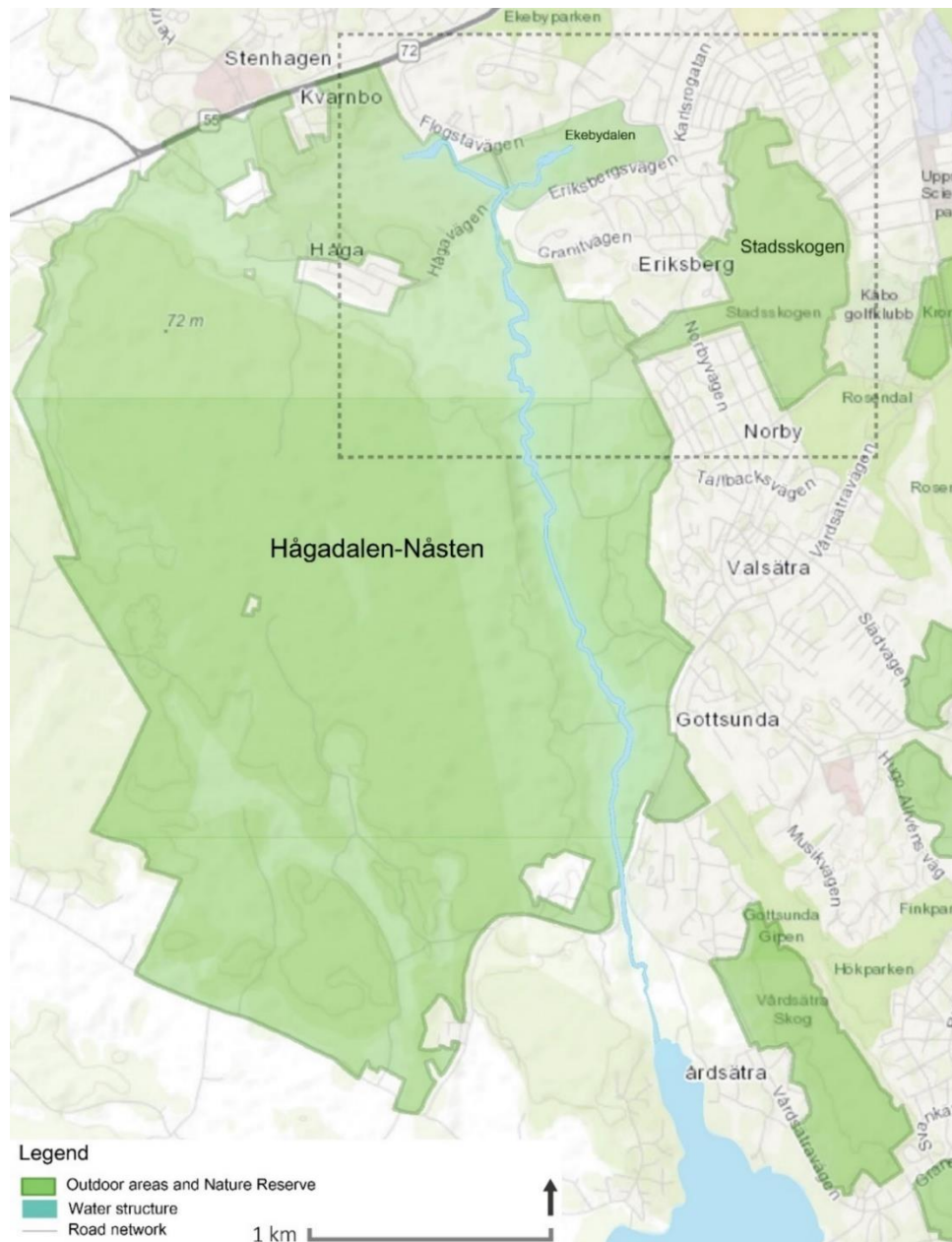


Figure 34. Map Connecting Ekebydalen allotment, Stadsskogen, Hågadalen nature reserve, and Water system, Uppsala municipality park plan, adapted by the author of the thesis

Concept and Program Development for Ekebydalen

On basis of the design principles of Olmsted, the planning proposal has taken advantage of unique characteristics of the Ekebydalen site (Allotment gardening), has stayed true to the rural-urban character of the landscape and Introduced variety of activities that seek to have a healthful influence beyond within each activity. Through transitional spaces, the different activities propose will be linked with each other and to Ekebydalen's surrounding area. Thus, this thesis recommends for Ekebydalen to be planned and develop as a Cultivation urban park, with qualities that contribute to social activities and well-being of urban residents.



Figure 35. Key Concept of integration for Ekebydalen cultivation park, by the author of this thesis

The proposed plan (see below in fig. 39) focuses on creating an activity channel that integrates the existing allotment gardens with the other park activities suggested. The proposed cultivation park is divided into three major sub parks. From west to east are the pond, fruit garden, and 4H farm with additional allotment garden and outdoor play space sequentially. The pond has the highest diversity and is the core element of the landscape that connects both allotment gardens (Ekebyodlarna and Flogstaringen).

The sub-parks (see below in fig.38, illustrated as a green, red, and Yellow zone in the map) act as a wise use area in the master plan. People living in this area can practice their gardening in a sustainable way by using the different zone area as a center for outdoor education, recreation, and cultivation. A line-wetland system starting from the pond will connect the transitional spaces (the social spaces and outdoor play spaces) at the same time while acting as a buffer zone.



Figure 36. Transitional spaces connecting the existing functions of Ekebydalen landscape, Satellite / Google map, Adapted by the author of this thesis

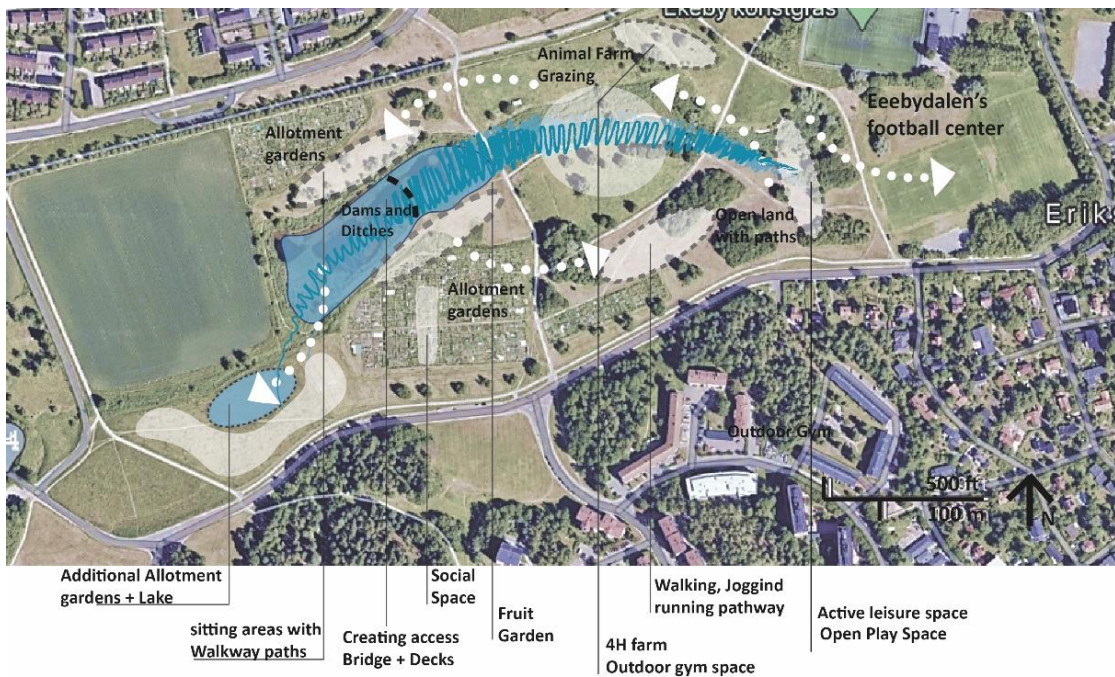


Figure 37. Activities for the proposed transitional spaces of Ekebydalen landscape, Satellite / Google map, Adapted by the author of this thesis



Figure 38. Proposed site plan and site section (A-A) of Ekebydalen landscape, Site plan from Google map, modified by the author of this thesis, Site section by author

The Green Zone



The Pond and Fruit Garden

- **Links the diverse activities of the cultivation park**
- **Connects both allotment gardens , (Ekebyodlarna and Flogstaringen) and ordinary people**



Figure 39. Proposed Space for the Pond's accessibility and use in Ekebydalen landscape, by the author of this thesis

The Red and Yellow Zone



Figure 40. Proposed spaces for red and yellow sub park zones of Ekebydalen cultivation park could look like, by the author of this thesis

6. Discussion

In this thesis, attempts have been made to understand the original concepts of urban agriculture with the movement for allotment gardens, their current use, and propose an implication for their future use with a focus on well-being and social sustainability.

This was done first, by looking at how urban agriculture has evolved throughout history. The perspective of the general development of urban agriculture in connection was studied with the formation of cities and through history in Sweden from a social and environmental context, the change in its land use, and the accessibility. Second, by exploring the types and activities of allotment gardens that take place nowadays by conducting an exploratory limited case study in Uppsala city. And third, by surveying how a gardener experiences and uses its allotment garden by conducting an online survey questionnaire for gardeners in Ekebyodlarna and Odlafröreningen Flogstaringen association.

6.1. The Practice and Perception of Allotment Garden

Gardening, physical activities, nature exposure, socializing, and vegetable growing are activities that are commonly practiced in the allotment garden. The benefits of gardening often correspond to the reason why people garden.

Accordingly, gardening and nature interest (100%), are reported to be of the main motivation while the social benefit is reported to be the least (15%) for and practiced activities by the participants in this study. Also, that, there are economic reasons for allotment gardens, directly from food production and indirectly for health reasons. When comparing this finding to a study done with the Philadelphia Gardening Programme (Blair et al., 1991), there are some similarities and differences. In the study, the gardeners were asked why they gardened. Interviewing a total of 144 gardeners, the study found that recreation (21%) was the most important reason followed by health benefits including ‘mental health’ (19%), ‘physical health and exercise’ (17%), and ‘produce quality and nutrition’ (14%).

Besides the activity of gardening, participants' viewing of the allotment garden as a green space, and their "being" in their allotment garden has also been shown to have positive effects on their mental health and stress. The findings of this study support the growing body of evidence indicating that contact with nature via gardening is beneficial for mental well-being (Kaplan, 1995) and that participation in green exercise activities provides additive benefits for health (Gesler, 1992, 1993). Based on the restoration theory of Kaplan (1995), individuals who undergo extreme tiredness due to excessive daily stress perceive using open spaces as an escape from urban life. Similarly, the allotment gardeners in Ekebydalen rely on various ways to lessen their daily stress.

In this regard, the participants have mentioned that routine and daily stress are the main issues they need to escape. Some participants have expressed that Ekebydalen is a perfect place "to break away from the "daily routines" they live in and to find time for themselves. Conclusions of the study correlate with findings of Hawkins et al. (2011) that have studied allotment gardening in Cardiff, Wales, UK. Their results found a significant difference in perceived stress levels between the activity groups of 'indoor exercise', 'walkers', 'allotment gardeners', and 'home gardeners'. Allotment gardeners reported significantly less perceived stress than participants of indoor exercise.

Furthermore, the allotment gardeners in Ekebydalen perceive the urban environment of Ekebydalen as an open space for relaxation and recreation through their contact with natural elements and fresh air. One of the respondents has said that "I enjoy the silent moments outside with coffee on my bench. I am working full-time and have children and I need to rest outside by myself". Another participant also referred to Ekebydalen as "a place where you are close to nature, very calm and can see widely around and not see houses and people". Conclusions of the study correlate with findings of previous studies in that the reliance on aesthetically pleasing natural elements can motivate residents to visit public spaces frequently (Guita et al., 2006; Hansmann et al., 2007; Cattell et al., 2008; Nordh et al., 2009; and Thompson et al., 2011).

The other main finding of this thesis is that the social benefit (15%) being reported as the least benefit and motivation for renting an allotment garden and practiced activities by the participants in this study. This shows that the people that have allotments today don't primarily see them as social benefits but primarily as a way to satisfy being in nature and creating gardens. This finding is in differentiate from an article that has investigated gardener's motivations and have identified social networking (Teig et al., 2009; Martin et al., 2017) to be the main reason for gardening practice. Even though 15% of social benefit is perceived to be low compared to the other benefits reported. The descriptive response of the participants shows that they consider their allotment garden to be a private space rather than a social and public space.

Even though the value of the social relations, the extent to which the gardeners make friends, and to what extent of the gardener's social life is to be found at the garden all vary, the commonly practiced activity shows that the gardeners like to talk to people maybe not on their allotment garden so much but somewhere close to the allotment garden. For example, on the paths (pedestrian and bike). The gardeners meet and talk to others outside of their allotment garden, they also rely on other gardeners for help, advice, and appreciate the fact that they are at least to a certain degree part of a community.

6.2. The Integration of Allotment Garden as an Activity

Although cities have been extremely stressed by unemployment and the people have started to grow vegetables in public places and created local food markets. The ideas of cultivating food can also be adopted potentially in cities without economic problems for its positive contribution to public life in public places. Accordingly, this thesis has proposed a program that is focused on the cohesive use of a public green space (Ekebydalen) as a cultivation park with a social focus perspective.

The proposal lifts the often-neglected questions of social sustainability and the complex values of green infrastructure integrated in the built structure of modern cities. The design and planning proposal responds to the recreational, cultivation, and social needs of the allotment gardeners that could also benefit the residents. The proposal also supports allotment gardens to become an important part of the urban greenery system. This, in turn, may save allotment gardens from liquidation and preserve them for future generations. They are not only the green lungs of the city but also a place where the whole local community can rest, learn, integrate, and spend their free time.

The concept of allotments being part of the green infrastructure and part of the urban fabric is also supported by earlier authors of a thesis work on Ekebydalen (in particular Sara Rydeman and Ellinor Scharin who wrote a well-reputed report on the future of Ekebydalen and Arosparken. Even though their study is more focused on ecosystem services of ekebydalen green space, it still points out the positive value of allotment gardens and the future benefit they could provide to residents other than gardeners.

Accordingly, the important objective or concept of this thesis's proposal program is to open the gardens to local communities. This will enable ordinary people to participate in the life of allotment gardens. This proposal is in line with a belief that that allotment gardens should not be closed units, inaccessible to the remaining inhabitants, or somehow 'detached' from the system of urban recreational areas (Dús 2011).

However, in order for the city inhabitants to use open allotment gardens, it is necessary to make maintenances of existing and new infrastructures. Similarly, the design strategies proposed in this thesis; diverse activity, Cross-functional use, and maintenance of infrastructures can potentially be used as a way to assimilate the allotment gardens as an activity with the other park activities. The design strategies should be able to integrate different age group users as they continue cultivating, working, and enjoying nature in Ekebydalen. At the same time provide a cross-functional use that can accommodate and integrate new developments with existing activities and structures of the area.

The proposed activities for different social groups have been initiated, including for the elderly and disabled people who are often marginalized. They also include creating play zones for children, and outdoor gyms. Moreover, some traditional activities are to be continued and supported, such as integration events for allotment users.

6.3. Strength and Limitation of the Study

The study has shown that urban agriculture is manifested in various types of initiatives and for different reasons throughout the formation of cities. Allotment has also been studied specifically with the reasons why people engage in the gardening practice. Thus, the main reason is based on the need to be close to nature, being in outdoor environment for a physical activity, cultivating vegetables for food complement reasons, and is strongly connected to well-being benefits. In contradiction, the study also showed that the social value of allotment gardening is not perceived to be equally as the others mentioned above.

The above reasons make the thesis work highly applicable for Landscape architecture. Eriksberg district in Uppsala in general and Ekebydalen's allotment gardening area particularly is an interesting case relevant for urban development issues in large parts of Swedish Cities.

In the process of conducting the study, I have gained valuable knowledge regarding the obstacles, challenges, and principles of studying open space throughout the course of the master's program, landscape architecture for sustainable urbanization. The practical and scientific experience I have gained relates to the study of open green spaces in a productive urban setting.

The methodological approaches were the most important element since these contributed to gaining awareness and understanding of how the study could be designed to answer the study questions and achieve the research aims. At the personal level, I have gained enough confidence to contact the users of open spaces and help them to express their perceptions and needs, which would provide valuable knowledge for this study.

The study of allotment gardens as an activity, as space (social and physical), and their use and functions should also guide experts to consciously shape environments that are appreciated in a certain way by the inhabitants. Experts include planners, architects, academics, and others who have direct influence over the urban planning process, such as politicians.

With more time I would have liked to conduct more extensive analysis on the use and motives of allotment gardening practice, comparing both from Sweden and another country. A comparative case-study approach to this research would provide a greater historical and contextual understanding of how urban agriculture arises in different cultures, settings and in different topographical context. This would also provide a better avenue for qualitative research and could include interviews with planners, landscape architects, and other officials involved in the planning of urban agriculture.

Similarly, it would have been interesting to hear what other types of green spaces that the allotment gardeners also use in the city and how they feel about them. Adding a few questions about this in the questionnaire would perhaps have given me an even better understanding what the values of the allotments are.

Due to time constraints, the study conventionally chose six allotment gardens from Uppsala city for the purpose of understanding the historical perspective of the development and use of their landscape. However, it would have been interesting to compare and see all the allotment gardens in Sweden in general. This could have provided an in-depth understanding of their character in terms their history, use, and the activities they provide.

Furthermore, the study's most qualitative research has focused on those practicing urban agriculture in Ekebydalen allotment. However, an additional approach could be to study the influence of higher levels of government on local policy and professionals who have direct influence over the urban planning process. because several municipalities within Sweden could have different take that could hinder or encourage urban agriculture. Thus, an expanded framework including professionals and urban elites both for and against urban agriculture could provide a better and inclusive insight in to understanding the planning process.

Moreover, the online survey questionnaires conducted on Ekebydalen considers participants from the two associations (Flogstaringen and Ekebyodlarna association) as one entity. This is because the associations have more in common than differences. They share the same landscape setting and infrastructures (pond, furniture, pedestrian, and bicycle paths). The only difference is their administration structures as they have different board members and association rules. Thus, it could be interesting to dive deep and see how the associations policy and way of administration affects the gardener's motivation and involvement in their allotment garden.

In a similar manner, it would have been useful to expand the study to include other types of open green space found in an urban setting. This could be useful in the integration of a larger policy environment in relation to urban agriculture. This could include the study of urban parks, plazas, and other amenity revenues for urban agriculture. Depending on the type, location, and use of different open spaces could potentially lead to different results and strategies.

In addition, Interviewing the municipality with questions like; how they view allotment gardens from their point of view (in planning and policy), on what basis do they communicate with the gardeners or if they are not involved more today? How will this be able to change in the future? Could have provided better understanding of the gardening practice and the current spatial planning of the allotment as an urban green space.

6.4. Implication and Further Studies

The study implies the potential of integrating allotment gardens as an activity with an urban park concept through a landscape design and planning guidelines.

The planning guidelines will primarily promote and strengthen the existing structures of the productive landscape. It will contribute to the integration strategies used for the existing cultivation use of the landscape with new structures of recreational use. Thus, the diverse cross-functional use of the landscape will contribute to the long-term use of the Ekebydalen area as an urban cultivation park for well-being and social sustainability. It will create positive social relationships between the allotment gardeners and residents of the Ekebydalen area when they are provided public spaces that attract them and meet their needs and expectations.

The study gives implications beyond the Ekebydalen. That is, the housing development agencies and other policymakers can use the findings and proposal of Ekebydalen as underlying evidence support for future developments. Most importantly, this study will lay an academic foundation for further research into the integration of urban agriculture into other social activities in an urban setting.

There is a general lack of studies and information in the literature about how to plan and integrate urban agriculture. Thus, the study has the potential to make an important contribution to academic research on the value and roles of open green space in social life and interaction. The focus on the Ekebydalen allotment garden is rare and contributes to addressing the sustainability aspects within the subject of landscape architecture as well as ethical aspects of research and development. The practical implications of the study are also important, as it highlights the necessity to develop open spaces design, planning, and management in order to better meet urban residents' social needs.

Furthermore, the connection between the gardeners and the allotment landscape in which they are engaged in different activities needs to be explored and be part of the normative position if the designed landscape is to appeal and contribute to local people's health and well-being. The allotment is a cultivation space but at the same time, it is a public open space that could result in spaces where the local people can interact and be inspired by the culture and history of the activity and be part of the community. Also, in countries where there are economic crises allotment gardens can become a strong element in a food security chain; spatial planning should continuously take that into account.

To conclude, With the increased need for allotment gardening, It could be possible to continue this kind of thesis work at a Ph.D. level with a detailed study focusing on how to make allotment gardens in a modern way and integrating them with social activities when working with green structures in Uppsala city.

6.5. Conclusion

This thesis has shown the potential role that urban agriculture has played through the history of cities, as an urban planning strategy, in addressing and overcoming social and wellbeing issues for urban residents. Urban agriculture provides a sense of meaning that extends beyond the physical and economic benefits of the activity itself. Accordingly, Allotment gardens in Uppsala city are extremely important in relation to an improvement in the living environment, the promotion of healthy lifestyles, accessibility for all age and social groups.

Consequently, this thesis argues that while the economic and well-being values of urban agriculture are perceived to be high, the social benefit which is seen less can be as equally important if integrated as an activity with other social activities in a city, especially in urban communities that don't have enough space for gardening and are caught in their busy lives.

Similarly, this study has shown that cultivators/gardener's value urban agriculture not only for its economic benefits, but as a component for their wellbeing; for building relationships, being close to nature, and creating safe space where they can have time for themselves. Thus, when looking at the benefits of urban agriculture, it is imperative to look at this holistically and not just focus on whether it can provide food security to improvising communities.

The aim of this thesis was to make a design proposal for urban green space, Ekebydalen allotment garden, on basis of findings, thus, this study showed how allotment garden can be integrated as an activity with other social park activities. The strategies for the integration describe a long-term sustainable use of an urban environment for agriculture and leisure (Cultivation park).

The environments of this cultivation park in urban settings are thus suggested to provide a cross-functional use of functions that are inclusive for different age group users including gardeners and residents that are not involved in cultivating activity. Subsequently, this thesis points out that the integration strategies require policy support, institutional recognition, and strong political will from policymakers and planners. This is crucially aimed at urban agriculture assimilating into city planning. The use of allotment garden as a critical public service element of the landscape will create identity of local communities and improve the quality of life for the people living and working in cities despite the fact that access to them is still very limited.

6.6. Recommendation

In order to improve the quality of life for the people living and working in cities, urban green areas are needed. Urban agriculture as part of the urban green areas is significant for the daily lives of everyone including old people, children, workers, and unemployed people living in the city. This is because these people make use of these places and give meaning to them in different times and for different purposes. Thus, the findings in this research should be used to help planners and policymakers to develop a more thoughtful urban agriculture policy and programs that can help integrate allotment gardens with other social activities in the city.

Sketching out the scenario for future use of allotment gardens in Uppsala is primarily the responsibility of urban development planning. This brings intentions and decisions of different actors, such as the administration, civil-society associations, interest groups, and the gardeners themselves to secure the status of allotment gardens as part of the public green space.

Within this context, the role of municipalities is recognised as key to the spread of urban agriculture. Therefore, a good place to start would be by identifying the allotment gardens in development plans and securing their long-term use. This could be done by integrating them into planning of urban green open spaces of the city's green infrastructure.

Along this recommendation, the municipalities should listen to and work together with the allotment gardeners. In this thesis's study example, Uppsala municipality should work with gardeners in the Ekebydalen allotment area, as they have a vision and ideas on how to improve the current condition of their allotment garden and Ekebydalen urban space in general. This will and can contribute to the future use of allotment gardens and to a sustainable use of open green space in Uppsala city.

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Appendix 1

Survey about activities and experiences of allotment gardening

My name is Semhal Mehari and I am a student doing my master thesis at SLU within the program 'Landscape Architecture for Sustainable Urbanisation' (LASU). The thesis project will generate knowledge about the activities in allotment gardens and with investigations of other possible social activities, an integrated design proposal will be included in the thesis.

I hope you will find it fun to answer questions about how you experience your allotment garden and ekebydalen environment. Thank you in advance for your time spent.

If you have questions about the survey, I am happy to answer them.

You can contact me via phone at 076-284 7561, and e-mail, semhal.mehary@gmail.com.

* Required

Informed consent

This survey aims to understand the importance of allotment gardens in ekebydalen area. The method will be used to answer questions about the experience and activities residents have on their allotment garden, ekebydalen, and their surrounding area. The results and analysis of the survey will be presented and structured so that the individuals behind the answers are anonymous. There are 22 questions and takes approximately 10 minutes to answer.

If there is a question that you do not have a suitable answer to, skip it or write a comment on the question.

1. Do you want to participate? *

Mark only one oval.

- ☐ Yes, Skip to question 2
- ☐ No Skip to section 3 (Declined participation)

Declined participation

You have declined to participate in this survey. Thank you for your time. You may close the browser or click submit below.

Demographic information

2. Gender

Mark only one oval.

- ☐ Female
- ☐ Male
- ☐ Other: _____

3. Age

Mark only one oval.

- ☐ 18-24
- ☐ 25-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60 and older
- ☐ Prefer not to answer

4. Country of origin

Mark only one oval.

- ☐ Sweden
- ☐ Within other EU/EEA Country
- ☐ Asia (AS)
- ☐ North America (NA)
- ☐ Africa (AF)
- ☐ South and Central America (SA)
- ☐ Oceania (OC)
- ☐ Other: _____

5. Social situation

Mark only one oval.

- ☐ Single household
- ☐ Family with children
- ☐ Couple
- ☐ Other

6. Employment status

Mark only one oval.

- ☐ Working
- ☐ Unemployed
- ☐ Student
- ☐ Retired
- ☐ Prefer not to say
- ☐ Other: _____

7. Educational background

Mark only one oval.

- ☐ Elementary school
- ☐ High school
- ☐ University Degree
- ☐ Prefer not to say
- ☐ Other: _____

8. What led you to getting an allotment garden? Choose one or more reasons

Check all that apply.

- ☐ Social reasons
- ☐ Stress release
- ☐ Health reasons
- ☐ Being active
- ☐ Being away
- ☐ Garden and nature interest
- ☐ Food complement

Other: ☐

9. How long did you have to wait in the queue for renting an allotment garden in Ekebydalen?

10. List down the activities do you do in your allotment garden and in Ekebydalen?

11. 4. How do you get to ekebydalen?

Check all that apply.

- ☐ By feet
☐ By cycle
☐ By car
☐ By public transportation
☐ Other

12. 5. How long does it take you to go to Ekebydalen from where you live?

Mark only one oval.

- ☐ less than 15 min
☐ less than 30 min
☐ less than one hour
☐ more than one hour
☐ Other:

13. 6. How many hours on average do you spend on your allotment garden per week?

14. 7. Do you feel the overall physical environment of Ekebydalen invites different age group of people?

Mark only one oval.

- ☐ Yes
☐ No
☐ Maybe

15. If your answer is no, can you explain why?

16. What benefits do you think gardening through allotments has given you?

17. Are you satisfied with the common space there is for having "fika", entertaining or gatherings?

Mark only one oval.

	1	2	3	4	5	
Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Satisfied

18. Do you feel there is enough space where you can display your products from the allotment garden?

Mark only one oval.

	1	2	3	4	5	
Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Satisfied

19. Do you feel that the space of your allotment garden is sufficient?

Mark only one oval.

	1	2	3	4	5	
Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Satisfied

20. Do you feel safe staying late in ekebydalen?

Mark only one oval.

	1	2	3	4	5	
Unsafe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very safe

21. Are you satisfied with the overall aesthetic or visual impression of the Ekebydalen?

Mark only one oval.

	1	2	3	4	5	
Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Satisfied

22. Are you satisfied with the interaction you have with the public people that goes through the allotment area?

Mark only one oval.

	1	2	3	4	5	
Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Satisfied

23. Are you satisfied with the interaction you have with your neighbors in Ekebydalen allotment area?

Mark only one oval.

	1	2	3	4	5	
Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Satisfied

Water feature (Pond)



24. What positive or negative feelings do you spontaneously associate with this place? Mark one or several options

Check all that apply.

- ☐ Interested
- ☐ Excited
- ☐ Happy
- ☐ Inspired
- ☐ Stimulated
- ☐ Harmonic
- ☐ Safe
- ☐ Calm
- ☐ Relaxed
- ☐ Uninterested
- ☐ Bored
- ☐ Depressed
- ☐ Annoyed
- ☐ Frustrated
- ☐ Irritated
- ☐ Stressed
- ☐ Worried
- ☐ Scared

25. Describe reasons behind your emotional memory. (The reasons can be the physical environment of the place or it can be activities that you remember has happened at this place.)

Pedestrian and bike path



26. What positive or negative feelings do you spontaneously associate with this place? Mark one or several options

Check all that apply.

- ☐ Interested
- ☐ Excited
- ☐ Happy
- ☐ Inspired
- ☐ Stimulated
- ☐ Harmonic
- ☐ Safe
- ☐ Calm
- ☐ Relaxed
- ☐ Uninterested
- ☐ Bored
- ☐ Depressed
- ☐ Annoyed
- ☐ Frustrated
- ☐ Irritated
- ☐ Stressed
- ☐ Worried
- ☐ Scared

27. Describe reasons behind your emotional memory. (The reasons can be the physical environment of the place or it can be activities that you remember has happened at this place.)

Question

Representative images of urban environments with in Ekebydalen.

Furniture (in common)



28. 19. What positive or negative feelings do you spontaneously associate with this place? Mark one or several options

Check all that apply.

- ☐ Interested
- ☐ Excited
- ☐ Happy
- ☐ Inspired
- ☐ Stimulated
- ☐ Harmonic
- ☐ Safe
- ☐ Calm
- ☐ Relaxed
- ☐ Uninterested
- ☐ Bored
- ☐ Depressed
- ☐ Annoyed
- ☐ Frustrated
- ☐ Irritated
- ☐ Stressed
- ☐ Worried
- ☐ Scared

29. Describe reasons behind your emotional memory. (The reasons can be the physical environment of the place or it can be activities that you remember has happened at this place.)

Constructions like bridges and fences

Representative images of urban environments with in Ekebydalen.



30. 20. What positive or negative feelings do you spontaneously associate with this place? Mark one or several options

Check all that apply.

- ☐ Interested
- ☐ Excited
- ☐ Happy
- ☐ Inspired
- ☐ Stimulated
- ☐ Harmonic
- ☐ Safe
- ☐ Calm
- ☐ Relaxed
- ☐ Uninterested
- ☐ Bored
- ☐ Depressed
- ☐ Annoyed
- ☐ Frustrated
- ☐ Irritated
- ☐ Stressed
- ☐ Worried
- ☐ Scared

31. Describe reasons behind your emotional memory. (The reasons can be the physical environment of the place or it can be activities that you remember has happened at this place.)

Representative images of urban environments with in ekebydalen.

Maintenance of Garbage and Weeds



32. What positive or negative feelings do you spontaneously associate with this place? Mark one or several options

Check all that apply.

- ☐ Interested
- ☐ Excited
- ☐ Happy
- ☐ Inspired
- ☐ Stimulated
- ☐ Harmonic
- ☐ Safe
- ☐ Calm
- ☐ Relaxed
- ☐ Uninterested
- ☐ Bored
- ☐ Depressed
- ☐ Annoyed
- ☐ Frustrated
- ☐ Irritated
- ☐ Stressed
- ☐ Worried
- ☐ Scared

33. Describe reasons behind your emotional memory. The reasons can be the physical environment of the place or it can be activities that you remember has happened at this place.

Question

For Ekebydalen to get higher design qualities and better contribute to social sustainability and well-being for the city dwellers

34. What do you think needs to be improved or needs to be integrated in?

Survey submission

Thank you for your participation. Please click the submit button.