



UNIVERSITY OF GOTHENBURG

Is it not enough to have nature outside cities?

- The role of urban green spaces in a sustainable city

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Abstract

Green spaces have been seen an important part of urban areas for a long period of time. Both social and ecological benefits are well researched in relation to the sustainable city and concluding that the green spaces have important values. However, how the social and ecological benefits correlate, and how these are interacting in the biophysical environment is still under researched.

The main aim of this thesis is to address what role urban green spaces have for the sustainability in urban areas. The result of observations and semi-structured interviews in three green spaces in Gothenburg, Sweden are presented and discussed. The researched issue concentrate on people's interaction, with each other and the natural environment, in their neighbourhood green space. The focus is to understand how the social and ecological benefits interconnect. Furthermore, the green space visitors' perception of nature and ecosystem services is explored. The result confirms a great potential of green spaces in urban areas for social interaction, environmental learning and knowledge about ecosystem services. The effect of different biophysical attributes in the green spaces is further discussed. Different types of green spaces motivate different type of activities. Therefore, a diversity of green spaces is needed to increase both social and ecological sustainability.

Keywords: *Urban green space, social sustainability, ecological sustainability, ecosystem services, social-ecological systems*

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Preface

This is Viktoria Viklanders master's thesis, 30 HP, in Global studies at the department of Global studies in the University of Gothenburg.

Supervisors has been Doctor Tom Böhler at the Department of Interdisciplinary Studies / Department of Global Studies and Professor Yvonne Andersson-Sköld at the Department of Earth Science at the University of Gothenburg and Researcher and Development Manager at COWI AB. This thesis is part of the research project Valuation of ecosystem services provided by urban greenery, by Formas, Trafikverket and Mistra Urban futures.

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Abbreviations

ES – Ecosystem services

SES – Social-ecological systems

LEK – Local Ecological Knowledge

GNS – Guldheden Nature site

TNS – Titteridamm Nature site

1. Introduction

We live in a time where several global forces are changing the world we live in, not least the relationship between humans and nature. One of these global forces is urbanization¹. In the 1950s, about 29 percent of the global population were living in urban areas; in 2050 it is predicted to be about 70 percent².

Urban green (and blue) spaces have historically provided cities with many provisioning ecosystem services (ES) such as agriculture, fish, water and fuel³. Even today, green spaces play a crucial part in urban areas, to provide ES, including air filtration, temperature regulation and recreation⁴. However, cities have changed. The urban trading places, which used to be place specific has become centres of national and global influences. Cities have become the main engine for the globalizing process⁵.

A challenge with urbanisation and the lifestyle changes that come with it is that there has become an increased pressure on the ES⁶. 60 percent (15 out of 24) of the identified ES are degrading or are being used in an unsustainable way⁷. We must change our behaviour and perception of a good life, reduce consumption and the use of non-renewable resources⁸. The human interaction with the ecosystems has gone through a significant shift where the link between the consumer of ES and the used ecosystem has become separated and disconnected, and at the same time creating the impression that cities are autonomous social systems⁹. The distance between the urban population and the required ES is affecting the decision-making over both nature and ES. In order to transform our current cities into sustainable ones, it is fundamental to recreate the connection between people and nature¹⁰.

¹Dempsey et al. 2011, 290

² Brugmann 2010, xii

³ Elmqvist et al. 2013, 21

⁴ Burgess, Harrison, and Limb 1988, 471; Elmqvist et al. 2004, 308

⁵ Brugmann 2010, xii–xiii

⁶ Bolund and Hunhammar 1999, 293

⁷ World Resources Institute 2005, 1

⁸ Rees 2003, 14–15

⁹ Andersson et al. 2014, 445; Elmqvist et al. 2013, 22

¹⁰ Andersson et al. 2014, 445; Haase et al. 2014, 413, 414; Jansson 2013, 286

Another challenge with urbanization is the social sustainability. The increasing urbanization process, from the first half of the 20th century, is seen as a force that changed the social order from small tied communities that shared space, traditions and kinship into anonymous, individualistic urban areas. Communities that used to have close relations with shared space and values have become replaced with anonymity¹¹.

Urban areas have a role in a sustainable development, and it becomes more relevant with the increasing urbanization. Today, the urban landscape is what most people see every day. Urban green space could both strengthen the biodiversity and ES in social-ecological landscapes and provide a reconnection to nature¹². Several researchers have highlighted the ecological and social importance of urban green space, often through a social-ecological lens. However, the understanding of the interaction between the social and ecological dimensions is not complete and needs to be further researched in order for planners to be able to implement these ideas¹³.

The development of green spaces as open spaces for the public has increased in Sweden during the last 200 years as part of the development of the modern city. Green spaces have become important due to aesthetic, social and hygienic reasons¹⁴. In addition, in Sweden, green spaces are considered to be part of the cultural wholeness of the cities, which has a qualitative value¹⁵. Moreover Swedish cities possess larger amounts of green spaces than most other European cities, which means that they have a great potential to include them in their sustainable development agendas¹⁶. Even so, green spaces are decreasing in all of the largest Swedish cities, including in Gothenburg¹⁷.

¹¹ Forrest and Kearns 2001, 2125

¹² Andersson, Barthel, and Ahrné 2007, 1267; Jansson 2013, 289

¹³ Kabisch, Qureshi, and Haase 2015, 25

¹⁴ Bucht and Persson 1994, 13

¹⁵ Bucht and Persson 1994, 39

¹⁶ Lundgren Alm 2001, 18

¹⁷ Hedeklint and Svanström 2010, 6

The different biophysical types of green spaces provide different social and ecological values but they also provide contradictions. For instance, wild urban nature might be a provider of ES, and be important for specific groups of individuals¹⁸, while others might perceive it as a dangerous and unsafe place¹⁹. Diversity between different green spaces, as planned parks or urban woodlands, could provide different opportunities and attract different groups²⁰. In this thesis, the understanding of how different types of green spaces contribute to sustainable development is further researched.

1.3 Problem formulation

Studies have been done on the social benefits of green spaces. It is important to further research this area by studying both visitors, those who are using green spaces, and non-visitors, those who do not visit green spaces, in order to understand how green spaces affect the social sustainability²¹. Also, studies have been done on the ecological benefits of green spaces as preservation of important ecosystem services (ES)²². However, we do not have a clear understanding of how the social benefits for people and ecological benefits for people and nature affect each other and correlate. This needs to be further elaborated, since the social and ecological systems are interdependent, combined as social-ecological systems. Coles and Caserio (2001) state that the social importance of green spaces should be researched in relation to place, where aspects as location, quality/experience and the functions provided plays an important role. Therefore, in order to understand the interaction between visitors and the biophysical green space, a holistic approach is needed. The different elements cannot be separated²³. A holistic social-ecological (SES) system perspective is necessary to understand how the social and ecological benefits is interrelated to elaborate the potential of green spaces as part of a sustainable development. Furthermore, it is important to understand how management of urban green spaces could increase both learning of nature, ecological sustainability and social sustainability and how planners can implement these ideas. In order to increase this

¹⁸ Thompson 2002, 67

¹⁹ Leslie, Cerin, and Kremer 2010, 807

²⁰ Peters, Elands, and Buijs 2010, 96; Thompson 2002, 67

²¹ Gentin 2011, 160; Leslie, Cerin, and Kremer 2010

²² Bolund och Hunhammar 1999a, 300; Enqvist, Tengö, och Bodin 2014, 25

understanding, the potential of urban green space and urban ES needs to be further researched²⁴.

Therefore, this thesis investigates how people use and relate to urban green spaces in order to better understand how urban green spaces can contribute to a sustainable development. In addition, this study will provide an understanding of the differences between different types of green spaces and how a variety of green spaces are needed in order to generate an urban sustainable development. The result of the thesis provides important knowledge for planners on how to manage green spaces for a sustainable future.

1.3.2 Aim

From what's been discussed in the problem formulation, it is important to increase social sustainability as interaction and inclusion, in the urban areas. Also, ecological sustainability as ecosystem services (ES) and biodiversity needs to be preserved and developed in urban areas. The processes of increasing social sustainability could be strengthened by places that could also strengthen ecological functions; the social and ecological functions are interconnected. Urban nature might not just be important for the urban social and ecological processes, but also for ecosystems outside city limits. Consequently, they have a greater potential than what is seen if you just see the two concepts as separate. Therefore, it is significant to further develop the holistic social-ecological system (SES) approach. The SES perspective is important in order to understand the potential for a sustainable development. So, the theoretical aim of this thesis is to understand how social processes and ecological processes could co-develop and strengthen each other in urban green spaces, and develop the SES approach, by exploring three different green spaces in Gothenburg, Sweden.

The theoretical approach leads to two empirical aims. First, to understand how different green spaces could provide different social and ecological benefits. The second is to explore how visitors of green spaces experience green spaces differently. This could be the experience of nature, alone time or interaction with other people.

²³ Coles and Caserio 2001, 29

²⁴ Haase et al. 2014, 414; Jansson 2013, 286; Kabisch, Qureshi, and Haase 2015, 25

This knowledge is important in order to fully understand the potential of different green spaces for increased sustainability and knowledge of ecosystems and ES.

The knowledge of these findings is important for policy makers. Therefore, a third aim is to contribute to policy by recommendations.

1.3.3 Research questions

The focus of the study is on what role the physical features of green spaces play to promote social sustainability and knowledge of ecosystem services and nature, from a visitor perspective.

- How are people using their neighbourhood green space?
- How are urban green spaces contributing to the knowledge and usage of ecosystem services?
- How can the usage of the green spaces in Gothenburg be understood from a sustainability perspective?

1.4 Delimitations

From the main project, three specific green spaces has been chosen from the criteria of being open green spaces close to one or several residential areas. The focus of the thesis will be on public green spaces since they are open places and therefore have the potential of creating including areas for everyone. Semi-open areas, as allotment gardens, or closed green spaces, as private gardens, are not public places. These areas have other qualifications and research on these types of areas does not fit into this essay. However, research on these types of green space should also be further developed.

Moreover, this thesis will only research visitors in green spaces. More studies needs to be done on people who do not visit green spaces. However, in this thesis there was not enough time and space to include this group.

1.5 Reading instructions

The following chapter, chapter 2, puts the topic of the essay in the context of global studies. This is followed by an introduction of the concept of green space in chapter 3. Chapter four presents and discusses the current development of research regarding the social and ecological benefits of green spaces.

Chapter five presents the theory of social sustainability and ecological sustainability and operationalizes the theory in six concepts, which is used through out the rest of the thesis. Chapter six contains the methodological considerations and critical reflections on the thesis. These two chapters will guide the rest of the thesis.

Chapter seven introduces the different green spaces and chapter eight discusses the result of both the interviews and observations from the concepts developed in theory. Chapter nine and ten provides an analysis of the result and concluding remarks based on the central concepts in theory and answers the aim and research questions.

2. Relevance to global studies

There has been a remarkable transfer of people, from rural to urban areas. Now more than half of the global population is living in cities²⁵. This geographical transfer is reconstructing the opportunities for humans. The urban regions, with proximity, density and scale, create opportunity to build power and wealth, including the possibility to influence the worldwide economics and politics worldwide²⁶. This creates a global network of cities, closely connected to each other. This development influences both the creation of new technologies, the economic development and puts an increasing pressure on the ES, both within and around urban areas²⁷. When power over economy and influence over political decisions becomes concentrated in urban areas, it is crucial to create a sustainable urban development, both within and outside the urban areas.

²⁵ Andersson et al. 2014, 445; Brugmann 2010, xii

²⁶ Brugmann 2010, xii–xiii

²⁷ Bolund and Hunhammar 1999; Brugmann 2010, xiii

According to several scholars, we have moved into a new era where the relationship between nature and humans is described as anthropocene, where humans are the dominating force of the planet. Other researchers argue that, because of the increasing urban domination, we have already moved past anthropocene into a new urban era. This increases the need to develop the theory of the interaction between the social and ecological, not the least in the urban areas and figure out what really contribute to a sustainable development²⁸.

When small communities grow into large cities as a result of globalisation and urbanisation, it changes the social interaction²⁹. There is a concern of how locality is produced in a globalised world³⁰. How the global urbanization affects the social sustainability in neighbourhoods needs to be further explored³¹. As green spaces often are considered to provide life quality in cities, it is an important field of study in this context³².

Trans-disciplinary, social-ecological studies are important to understand how humans relate to, and interact with, nature in order to understand urban ecosystems and to create a sustainable development³³. The interconnection between the social and ecological dimensions of sustainability is not yet well developed in research³⁴. This study will contribute to the knowledge of how interaction between the urban nature and people could contribute to a sustainable development.

3. What is green space?

In the literature, a variety of different concepts are used to define the urban greenery; green space, urban/open green space, parks and green infrastructure.

The most frequently used concept in this area is green space. The authors using this concept often have a broad definition, which includes green spaces, street trees,

²⁸ Elmqvist et al. 2013, 25

²⁹ Forrest and Kearns 2001, 2125

³⁰ Appadurai 1995, 178

³¹ Forrest and Kearns 2001, 2125

³² Chiesura 2004, 129; Coles and Caserio 2001, 5

³³ Pickett et al. 1997, 185

residential lawns and private gardens³⁵. James et al. (2009) defines green space as all open spaces with unsealed, soft surface as soil, grass, tree and water. His definition shows the span of what the concept might include. Green space is used both by researchers of ecological functions, e.g. Andersson et al (2014), Bolund, and Hunhammar (1999) as well as by researchers of social functions as Burgess, Harrison and Limb (1988) and Tzoulas et al (2007). The concept of green space does not provide detailed information of the type or function of the green space.

In order to understand the different functions of a green space, the concept sometimes needs to be narrowed down and further defined. The researchers' who are focusing on social benefits are more often using the concept of parks. In this way, they separate between different kinds of greenery by function, as park, urban forest or gardens³⁶.

Bolund and Hunhammar (1999) have identified seven different urban ecosystems to describe the ES generated by green spaces; street trees, lawns/parks, urban forests, cultivated land, wetlands, lakes/sea and streams³⁷. Green spaces and urban ecosystems are therefore used as synonyms here. There is a difference between parks, which are "a mixture of grass, larger trees and other plants", and for example urban forest that is less managed and has a denser layer of trees. A third type is cultivated land and gardens which are areas used for growing food³⁸. According to Bolund and Hunhammar (1999), it is evident that the biophysical differences between different types of green spaces are important to understand the variety of ecological functions between the different green spaces.

Lundgren Alm (2001) on the other hand describes how Grahn, a professor in landscape architecture is separating the concept of park into different user characters in order to define the social functions. Eight different characters of parks are defined. These types are important for the experience of visiting the urban nature; the wild, the

³⁴ Murphy 2012, 15

³⁵ Andersson et al. 2014; Bolund and Hunhammar 1999; Burgess, Harrison, and Limb 1988; James et al. 2009; Kabisch, Qureshi, and Haase 2015; Peters, Elands, and Buijs 2010

³⁶ Chiesura 2004, 130; Leslie, Cerin, and Kremer 2010, 803

³⁷ Bolund and Hunhammar 1999, 293–294

³⁸ Bolund and Hunhammar 1999, 294

biodiverse-rich, the calming, the forest-feeling, the party-spot, the decorative, play-friendly, and sport-friendly (authors translation)³⁹. The definition of Lundgren Alm (2001) and Grahn shows how the different social functions are changing with the different biophysical features⁴⁰.

It is important to understand how the biophysical features in green spaces could interrelate to social sustainability and change the user patterns. Public green space is useful since it is open and does not exclude anyone. However, in order to see the differences within the specific green spaces, the term park is used to define the type of green space with lawns and fewer trees, while urban forest or woodlands are used to define areas with denser tree growth and wilder nature.

4. State of the art

4.1 Social benefits of green spaces

The interest of the interaction between people and urban green spaces has increased during the last decade, as has the interest in the positive outcome of green spaces⁴¹. Even though there is no consensus on this point, Dempsey et al. (2011) argue that high quality environments leads to positive social activity⁴². Benefits found in the literature include stress reduction, clearing of thought, calmness, increased physical and psychological well-being, distance to urban life and a reduction of health inequalities between different groups of people⁴³. People are visiting urban green spaces to see nature and the changing seasons, feel the sun, wind and rain as an active involvement but also for social activities where people could meet and share experiences⁴⁴. Green spaces could be seen as a counterpoint to other parts of the urban room and fulfil an immaterial and non-consumptive need, since it is one of few urban

³⁹ Lundgren Alm 2001, 24

⁴⁰ Lundgren Alm 2001, 24

⁴¹ Kabisch, Qureshi, and Haase 2015, 26

⁴² Dempsey et al. 2011, 292

⁴³ Burgess, Harrison, and Limb 1988, 459; Kabisch, Qureshi, and Haase 2015, 26; Kaplan and Kaplan 1989, 1;

Konijnendijk et al. 2013, 8; Sugiyama et al. 2008, 173

⁴⁴ Burgess, Harrison, and Limb 1988, 460, 471

spaces which are free of charge⁴⁵. All these benefits show the need of green spaces in an urban sustainable development, because it creates high quality environments.

There are cultural variations in the usage of green spaces. For example, non-western immigrants in Europe often uses green spaces for picnicking or barbequing in larger groups during the weekends, while native (Dutch people in this study) people to a larger extent are daily users for dog walking and other alone activities⁴⁶. Therefore, cultural diversity could call for different types of green spaces.

4.1.1 Place attachment

Place attachment describes the relationship between people and the environment⁴⁷. By using urban green space, people connect both to the environment and to other people in the area, which increases the attachment to the place⁴⁸. Visiting green space includes meeting other people, which creates a feeling of familiarity and of being at home. Moreover, usage of, as well as a concern with, green space create a connection and therefore place attachment⁴⁹, it also makes people reconnect to nature⁵⁰. The ecological and social sustainability is interconnected through place attachment.

Specific places or attributes at a place could become special spots, on a highly individual level; a tree which reminds of childhood, or a special place to hide away. Furthermore, a pond or woodlands can creates special ties⁵¹. Therefore, to increase the sense of place, certain natural features should be included.

Both place attachment and social interaction can increase social cohesion⁵².

Moreover, place attachment makes people more committed to learn about an area and to respond to negative changes, which increase knowledge about ecosystems and leads to awareness of sustainability⁵³.

⁴⁵ Burgess, Harrison, and Limb 1988, 471; Chiesura 2004, 129

⁴⁶ Peters, Elands, and Buijs 2010, 97–98

⁴⁷ Peters, Elands, and Buijs 2010, 94

⁴⁸ Gentin 2011, 158; Peters, Elands, and Buijs 2010, 99

⁴⁹ Peters, Elands, and Buijs 2010, 94, 99

⁵⁰ Andersson, Barthel, and Ahrné 2007, 1267

⁵¹ Kaplan and Kaplan 1989, 163

⁵² Peters, Elands, and Buijs 2010, 94

⁵³ Andersson, Barthel, and Ahrné 2007, 268

4.1.2 Social interaction and social cohesion

Urban green space is providing the possibility of social interactions and integration because of the cost-free, openness of the green space⁵⁴.

Interaction in green spaces is confirmed at a general level; people recognize other visitors and have short interactions with each other, which leads to a comfortable feeling. A reason for visiting urban parks is to meet people, often familiar ones, but also for small talks with strangers. Such weak ties have proven to be important, because it increases the social capital and could lead to strong ties⁵⁵. Not all open spaces facilitate interaction; many public spaces are for transit and do not support interaction. Moreover, most people do not interact with others unless they are encouraged to. Specific events or elements in the open space can stimulate interaction, which is called triangulations. People that more easily make contact with other constitute one form of triangulation, where that person is the simulative element⁵⁶.

The relationship between green space, social interaction and cohesion is complex. Socio-economic differences could decrease level of social accessibility and cohesion⁵⁷. If a community suffers from low social inclusion and capital, in the form of trust, networks of cooperation and community identity; health inequalities could raise because it creates a difference in social access⁵⁸. This is confirmed by Leslie, Cerin and Kramer (2010), who argue that green spaces are perceived as safer as well as more social in high-income areas⁵⁹. If the residents are not feeling safe, green spaces could even become barriers⁶⁰. Different groups in society might have different perceptions of what constitute a safe space in their city. You need to perceive parks in

⁵⁴ Kabisch, Qureshi, and Haase 2015, 26; Konijnendijk et al. 2013, 8; Peters, Elands, and Buijs 2010, 93

⁵⁵ Gentin 2011, 156, 158; Peters, Elands, and Buijs 2010, 97

⁵⁶ Peters, Elands, and Buijs 2010, 94

⁵⁷ Gentin 2011, 156; Leslie, Cerin, and Kremer 2010, 802; Seaman, Jones, and Ellaway 2010, 1

⁵⁸ Seaman, Jones, and Ellaway 2010, 1, 7

⁵⁹ Leslie, Cerin, and Kremer 2010, 807

⁶⁰ Burgess, Harrison, and Limb 1988, 472; Gentin 2011, 156; Leslie, Cerin, and Kremer 2010, 807

a positive way to benefit from them⁶¹. Green spaces could only help increase social cohesion if all different groups are using them⁶².

Green spaces are places where pre-adolescents and adolescents could be without being watched, test their boundaries and interact with the natural environment. These interactive actions most often occur in wilder green space, because it is more sheltered from prying eyes. This could be a type of behaviour, which is not tolerated at other places and therefore important for the youth⁶³. The possibility for specific groups to meet without being watched, but also to stay out of the way of other groups, is an important social function, which could increase the social cohesion because it increases the sense of attachment and becomes a way to produce locality (for definition, see chapter 5.1.2.4 place attachment).

There are controversies about the social benefits of urban green space. As we can see, neighbourhood parks could be a driver for inclusion. At the same time, without interaction between social groups, there is no increased social cohesion. There is a contradiction between the well-adjusted safe places, which could include a large variety of groups and the need for less planned places for specific groups to be active and social. Another possible controversy is the one between natural biodiversity rich environment and safe public places. This could mean that there is a need for both urban parks and urban woodlands and that they could fill different needs. However, most studies regarding social sustainability in urban green space do not separate different kinds of green spaces. To further understand how different green spaces are contributing in different ways, research on different types of green spaces needs to be done.

4.2 Ecological benefits of green spaces

4.2.1 Urban ecosystems

Ecosystem services (ES) in urban green spaces arise from the complex interaction between human activities and ecological processes, a mixture of different land uses

⁶¹ Leslie, Cerin, and Kremer 2010, 807

⁶² Peters, Elands, and Buijs 2010, 93

and management of green spaces⁶⁴. Green spaces in urban areas are often small parts of what used to be a biodiversity rich cultural landscape. The greenery provides a large diversity of land and ecosystems in smaller scale. It could be used as refuges for species, which have fled from the loss of landscape diversity. Therefore, different forms of green spaces, such as parks, public and private gardens, cemeteries, golf courses, with their different management forms, all contributes to urban ES⁶⁵.

Even though the larger quantity of ES is produced outside of city borders and the limitations in space makes it impossible to produce all ES within the city limits, it is still important to have a variety of ES in the urban areas. Cities can be good preservers of biodiversity and ES, as local protection of pollinators, recreation, cooling of local climate and flood control. In urban areas, green space is crucial in order to delay and retain water to reduce flooding and to increase water quality by purification (Provisioning service). These needs will increase with climate change, since the water flow is predicted to change with increased precipitation and flooding⁶⁶. Moreover, some well needed ES cannot be transported, for example noise reduction, absorption of pollutants in water and air and recreational and educational values⁶⁷.

There are interconnections between different kinds of ES; the preservation of one could lead to a stronger support for another. Andersson et al. (2014) exemplify through a study made by Lundberg et al. (2008), that recreational oaks in the centre of Stockholm benefits from seed dispersing birds, which are also dependent on coniferous forests outside the city limits to stay strong. This makes the coniferous forest contribute to the preservation of the recreational value, by its contribution to the oaks' survival, since they are essential for the seed dispersals, even though it is placed at a distance from the specific area⁶⁸. Green spaces in urban areas often become isolated and detached from the surrounding environment, which leads to a loss of

⁶³ Thompson 2002, 67

⁶⁴ Andersson et al. 2014, 446, 449

⁶⁵ Andersson et al. 2014, 446

⁶⁶ Jansson 2013, 287

⁶⁷ Bolund and Hunhammar 1999, 300; Enqvist, Tengö, and Bodin 2014, 25

⁶⁸ Andersson et al. 2014b, 447

biodiversity. To try to preserve ES in isolated green spaces without seeing them as an integrated system will fail⁶⁹. It is necessary to have a holistic view of the network of green spaces in an urban area and see how a variety of urban and rural green space together creates sustainable habitats for ES.

4.2.2 Social-ecological benefits in green spaces

Sustainable habitats for ES constitute an important part of understanding green spaces as SES⁷⁰. SES-perspective is a holistic approach, seeing social and ecological processes that are integrated systems that is co-adapting (for further explanation, see chapter 5.1.3.1 Social-ecological systems).

The urban population is the main driver of ES degradation. Therefore, the distance between the urban population and the ecosystems consumed becomes problematic⁷¹. In order to change the view of consumption and to make both consumption and production sustainable, the understanding of ecosystems must increase. Therefore, interaction with ecosystems must be offered close to people⁷². Urban green spaces could be a way to recreate an understanding for ecosystems and ES. Examples of these important ES are how vegetation contributes to a local climate regulation by shading and through evapotranspiration. Urban heat has impact on energy demand, air quality and public health. Climate change is a threat to urban areas, in particular through heat waves and coastal storms. Green spaces could be a useful tool to decrease the impact from climate change⁷³. The vegetation provides important services for improving the air quality in cities, especially by urban woodlands and green roofs. However, so far the effects are not well documented and could be overstated⁷⁴.

Different green spaces provide different ES. For example allotment gardens has a much larger population of pollinators, which important to maintain and regulate ES,

⁶⁹ Barthel et al. 2015, 1

⁷⁰ Andersson et al. 2014, 447

⁷¹ Andersson et al. 2014, 445

⁷² Andersson, Barthel, and Ahrné 2007, 1267

⁷³ Jansson 2013, 287

⁷⁴ Jansson 2013, 288

as food production, than cemeteries and urban parks⁷⁵. By focusing on pollinator-friendly management, an abundance and diverse pollinator community could enhance⁷⁶.

A distinguishing feature between different green spaces is how species are protected. In Andersson, Barthel and Ahrné's study (2007) it became evident that small birds systematically are taken care of by the managers in both allotment gardens and cemeteries. However, they did not find the same kind of caretaking in the city parks. However, they noticed that visitors in the city parks were feeding the birds⁷⁷. The differences show how the management and involvement from the public affects the caretaking of ecosystems.

Diversity within and between different green spaces is crucial for the preservation of both social and ecological benefits. In order to increase this diversity, a holistic approach of the green infrastructure within a city as well as between urban and rural areas is important.

4.3 How does social and ecological benefits correlate?

The state of the art concludes that there are important social values of green spaces, because it creates high quality environments, instead of empty and dirty environments, which makes people interact. This function is important to create a cohesive community. Green spaces are also important for preservation of ecosystems and ES. To see green spaces through a SES-perspective as well as to create knowledge of ES is essential to increase the ecological sustainability and social values within, but also outside, the urban areas. Interaction with green spaces can increase the knowledge of ecosystems, and make people aware understand natural phenomena, ecosystems and how to protect nature. Together, the previous research shows that there are social and ecological values; place attachment for example, increases both the social and ecological sustainability by creating a connection to place. The different benefits of green spaces is visualised in figure 1.

⁷⁵ Andersson, Barthel, and Ahrné 2007, 1270

⁷⁶ Gunnarsson and Federsel 2014, 1185

⁷⁷ Andersson, Barthel, and Ahrné 2007, 1270

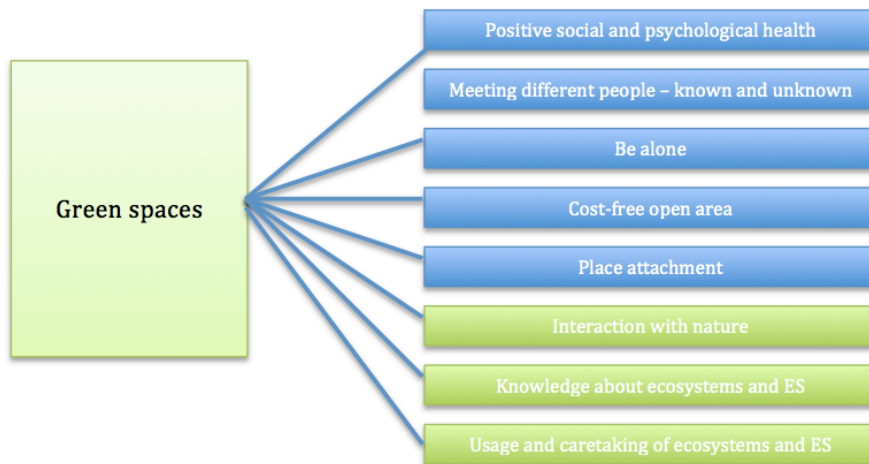


Figure 1 - Positive outcomes of green spaces

The shape of the place is important since it creates different potential for place attachment and interaction since different green spaces attracts different groups in society, as woodlands for nature experience or parks to meet friends. To create green spaces that attract different groups is therefore important; a variety of physical attributes become an important factor. Both place attachment and social interaction is important to create social cohesion. Interaction and participation are important social values, which can increase awareness of sustainability and knowledge about ES.

A variety of green spaces are important for the ecological functions as well, diversity within and between green spaces provides an increased biodiversity and ES.

As seen, the biophysical features of the green space matters, both in relation to social activities and ecological functions. Therefore, the place matters. However, most studies do not take the biophysical differences between different types of green spaces into account. Therefore, how different places provides different opportunities could be further developed. This thesis is focusing of how different types of green spaces, parks and urban woodlands, contribute to social sustainability as well as environmental learning for ecological sustainability.

5. Theoretical framework

5.1 Sustainable development

Sustainable development is a well-used concept, developed during a period of rising awareness of the ecological destruction, as well as a vast decrease in the social concern during the 1980's⁷⁸. The Brundtland report created the most used definition of sustainable development; "development that meets the needs of the present without compromising the ability of future generations to meet their own needs"⁷⁹.

Sustainable development is often divided into three dimensions; an ecological, a social and an economic⁸⁰. The dimensions are interrelated in many ways and should be seen as parts of a whole. One aspect of sustainable development is environmental integrity, which means we need to find the ideal balance between the use of ecosystem ecosystems to support our livelihood and the need to protect and restore them. The natural resources, coming from the environment, should be distributed in an equal way for present and future generations, without degrading the ecosystems. Therefore, a sustainable use of ecosystems is necessary to reduce poverty and the global inequity⁸¹. A closer relationship between people and the natural environment is one tool to increase the knowledge about the environment and recreate the knowledge about environmental integrity to create a sustainable usage of ecosystems⁸².

From the concept of sustainable development, I will focus on social and ecological sustainability because it is most relevant in the context of urban green space.

5.1.2 Social sustainability

The concept of social sustainability is both analytical and normative and difficult to define⁸³. For instance, Murphy (2012) suggests four concepts to define social

⁷⁸ Dempsey et al. 2011, 289

⁷⁹ WCED 1987, 330

⁸⁰ Berkes, Folke, and Colding 2000, 4; Murphy 2012, 18

⁸¹ Wuelser, Pohl, and Hirsch Hadorn 2011, 84

⁸² Elmqvist et al. 2004, 14

⁸³ Murphy 2012, 18

sustainability; equity, awareness for sustainability, participation and social cohesion⁸⁴.

Dempsey et al. (2011) operationalize the concept in a larger list of factors in figure 1.

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Non-physical factors	Predominantly physical factors
<ul style="list-style-type: none"> • Education and training • Social justice: inter- and intra-generational • Participation and local democracy • Health, quality of life and well-being • Social inclusion (and eradication of social exclusion) • Social capital • Community • Safety • Mixed tenure • Fair distribution of income • Social order • Social cohesion • Community cohesion (i.e. cohesion between and among different groups) • Social networks • Social interaction • Sense of community and belonging • Employment • Residential stability (vs turnover) • Active community organizations • Cultural traditions 	<ul style="list-style-type: none"> • Urbanity • Attractive public realm • Decent housing • Local environmental quality and amenity • Accessibility (e.g. to local services and facilities/employment/green space) • Sustainable urban design • Neighbourhood • Walkable neighbourhood: pedestrian friendly

Table 1. Urban social sustainability: contributory factors as identified in the review of literature (in no particular order)
 Sources include Chan and Lee, 2008; Meegan and Mitchell, 2001; Turkington and Sangster, 2006; Jacobs, 1999; Bramley *et al.*, 2009; Yiftachel and Hedgcock, 1993; Urban Task Force, 1999; Hopwood *et al.*, 2005; Littig and Griessler, 2005; Burton, 2000a.

Figure 2⁸⁵

The authors highlight social equity and sustainability of community, as key factors of social sustainability in urban areas. Social equity could be related to the individual level of justice, while sustainability of community relates to the collective aspects. Sustainability of community is defined as how a local community could sustain and reproduce itself and still maintain its functions⁸⁶.

In this thesis, sustainability of community will be understood as a way to operationalize social sustainability in the local area. Dempsey et al. (2011) gives five dimensions to take into account; social interaction/social networks in the community (1), participation in collective groups and networks in the community (2), community stability in order to sustain and reproduce itself, pride/sense of place (3) and safety/security (4)⁸⁷. Therefore, these concepts will be used throughout this thesis, except for community stability, which I do not consider relevant in relation to green spaces since part of the concepts fits into place attachment and social cohesion, while

⁸⁴ Murphy 2012, 15, 19

⁸⁵ Dempsey et al. 2011, 291

⁸⁶ Dempsey et al. 2011, 294

the concept also includes mobility which connects to several different factors, which is not a clear connection to the built environment⁸⁸. Social cohesion (5) is created through social interaction, integration and place attachment⁸⁹. Kabisch, Qureshi, and Haase (2015) point out that social cohesion has not been much researched in green space research⁹⁰ due to its potential for interaction, it is a dimension to take into account, therefore it will be taken into account as well. Murphy's (2012) definition is integrated in the five concepts described, except for awareness for sustainability (6), which will be added to the dimensions of social sustainability to further understand the integration between the social and ecological dimensions.

5.1.2.1 Social interaction

Interaction is an essential part of the glue, which holds the different elements together of a system, in this case a resilient city. Social interaction creates a cohesive community⁹¹.

Social interaction increases with social capital and social networks. Social capital includes trust and knowledge of relationships within the community and social networks are important support systems⁹². Social networks include both short interaction, such as recognising neighbours on the street, as well as relationships with strong ties such as family and friends. Even if the name suggest otherwise, both strong and weak ties could be equally important. Neighbourhoods are filled with weak ties connecting people to their neighbourhood, providing a sense of home, security and practical and social support, which could be a significant arena to create and maintain those weak ties. Weak ties are both a factor for well-being and sense of community, but also as a ground for building strong ties⁹³.

A local social network is more important for certain groups. People who are home during the day, unemployed, children and elderly have an increased need for local

⁸⁷ Dempsey et al. 2011, 292–297

⁸⁸ Dempsey et al. 2011, 296

⁸⁹ Dempsey et al. 2011, 294; Murphy 2012, 24–25; Peters, Elands, and Buijs 2010, 94

⁹⁰ Kabisch, Qureshi, and Haase 2015, 28

⁹¹ Dempsey et al. 2011, 294; Steiner 2004, 188

⁹² Dempsey et al. 2011, 294

⁹³ Forrest and Kearns 2001, 2132–2133

ties. Also, from a class perspective, working class people do often depend more on the local social network than middle class people who often have a larger network outside the local area⁹⁴.

5.1.2.2 Participation and networks in the community

Participation in community activities is crucial for a sustainable development as well as for an increased social cohesion and network integration. To take part in participatory process increases social inclusion (Murphy 2012, 24). Participation could, for example, be through political activity or sport arrangement in the neighbourhood. Participation is positive to community sustainability⁹⁵.

5.1.2.3 Safety and security

The safety within a neighbourhood is crucial for social sustainability and closely related to community sustainability and enables people to interact and participate in activities in the neighbourhood⁹⁶. So, safety is thus important since it affects how people use the open spaces in the area.

5.1.2.4 Place attachment

To feel pride and enjoy the neighbourhood is an essential part of the social sustainability concept and causes a sense of place. This notion has two interlinked parts: the first one is called sense of place attachment, which could be described as enjoyment in the place you live in and to feel attached to the place. A perceived sense of quality of a place, connected to identity⁹⁷. This relates to Andersson et al.'s definition of sense of place as "an intimate emotional attachment to a place, created through first-hand interaction between humans and places"⁹⁸. The second part is the sense of community, which stems from the interaction with other people in the community and feeling of a shared neighbourhood by the residents, which creates a local order and a feeling of a right to belong⁹⁹.

⁹⁴ Forrest and Kearns 2001, 2132

⁹⁵ Dempsey et al. 2011, 295–296

⁹⁶ Dempsey et al. 2011, 297

⁹⁷ Dempsey et al. 2011, 296

⁹⁸ Andersson, Barthel, and Ahrné 2007, 1268

⁹⁹ Dempsey et al. 2011, 296

Appadurai (1995) uses production of locality to describe how people in a community create locality in a neighbourhood. Locality could be described as a property of social life¹⁰⁰. It can be seen as the social order that is important for social sustainability. Locality is therefore something that is constantly produced by the people through action, physical and social symbolism, through clothing and aesthetics, but also through a spatial production of locality in buildings, gardens and other actions, which remakes the area, and makes it “yours”. Locality is contextual and relational, and it is something humans do if they get the chance¹⁰¹. Locality must be produced and reproduced in order not to disappear or change¹⁰².

5.1.2.5 Awareness of sustainability

Awareness of sustainability generates opportunities for the public to learn about the issues regarding sustainability and to promote alternative consumption patterns. According to Murphy (2012) environmental education is a key objective for change¹⁰³. A sustainable interaction with nature comes from place attachment and knowledge about nature¹⁰⁴. The more attached you are to a place, the more you are willing to learn and react to negative change. In return, this engagement increases the place attachment¹⁰⁵.

Green spaces are important urban spaces for experiencing and learning about nature, how it works and to form emotional attachment to nature, particularly for children. That is essential in order to create an ecological sustainability¹⁰⁶. There is a need for people to learn about nature, and children are expressing this through their curiosity and exploration they do by playing in nature¹⁰⁷. How this learning and interaction can be provided will be further elaborated in chapter 5.1.3.1 Social-ecological systems (SES). Here, the connection between social and ecological sustainability becomes clear.

¹⁰⁰ Appadurai 1995, 182

¹⁰¹ Appadurai 1995, 178–179

¹⁰² Appadurai 1995, 184

¹⁰³ Murphy 2012, 23

¹⁰⁴ Marten 2001, 146

¹⁰⁵ Andersson, Barthel, and Ahrné 2007, 1268

¹⁰⁶ Malone 2004, 53; Marten 2001, 147

5.1.2.6 Social cohesion

Social cohesion is defined as to what extent geographical places create a community and how the cohesion is strengthening social community networks, reduce conflict and create solidarity and integration¹⁰⁸. Social cohesion is built by social interaction between different groups in the everyday life. Interactions stimulate participation and build a feeling of acceptance. Everyday interaction and meetings between different groups mostly take place in public space, especially in urban context, which makes the public space extremely important, to create weak and strong ties¹⁰⁹.

To understand how social cohesion is promoted in a green space, function, image, design and location of a specific green space needs to be taken into account in order to encourage different groups to meet and to create intercultural interaction¹¹⁰.

However, as with other concepts, social cohesion is not always positive. Communities seen as cohesive could also be closed and therefore create a fragmented and divided city and be in conflict with other areas. Therefore, integration is crucial as well as the ability to create welcoming places for everyone¹¹¹.

5.1.3 Ecological sustainability

Environmental problems are nothing new. However the human-nature interaction has become more unsustainable, because of, among other things, the increased demand for ecosystem services (ES) from the expanding economy and from the urbanization that decreases the co-adaptation and increases the distance between humans and nature¹¹².

The ecological pillar of sustainable development takes notion to the carrying capacity of ecosystems into account. The social and economic sustainability must be obtained without depleting the natural ecosystems and by keeping the environmental

¹⁰⁷ Marten 2001, 145

¹⁰⁸ Murphy 2012, 24–25; Peters, Elands, and Buijs 2010, 94

¹⁰⁹ Peters, Elands, and Buijs 2010, 94

¹¹⁰ Peters, Elands, and Buijs 2010, 99

¹¹¹ Forrest and Kearns 2001, 2128

¹¹² Marten 2001, 136

integrity¹¹³. To reach ecological sustainability, the usage of ES must be done without reducing the natural resources. Therefore, there is a need to protect the natural ecosystems and biological resources, both for the human well-being, since we are dependent on the nature, but also for the intrinsic value of nature¹¹⁴. In order to create an ecological sustainability a precautionary principle must be used when exploiting ecosystems¹¹⁵.

Ecological sustainability is not just about protecting the natural ecosystems, but also about taking advantage of the ecological processes, self-organizing abilities, the positive and negative feedback loops, natural cycles and to adapt to the natural processes in the specific climate region¹¹⁶.

5.1.3.1 Social-ecological systems (SES)

A social-ecological perspective brings a holistic approach, focusing on the interconnection between the social and ecological systems. Social and ecological systems cannot be separated; instead, they are fully integrated and interdependent which makes them co-evolve both in time and space¹¹⁷. Marten (2001) describes two ways in which ecological and social systems co-adapt; “1. Ecosystems reorganize themselves in response to human actions. 2. People change ecosystems to fit their social systems.”¹¹⁸. The social-ecological dynamic creates important ES for human well-being¹¹⁹. In urban areas, biodiversity and ES is maintained by human action, the protection of land and by ecological processes. Both private and public gardens, cemeteries and golf courses, among others, contribute to biodiversity and ES. At the same time, isolation of green spaces and a lack of understanding of ecological systems, could lead to a decrease of biodiversity. How people interact with, and learn from, green spaces with different spatial structures becomes important in order to understand the complex interaction between different types of green spaces¹²⁰.

¹¹³ Naess 2001, 504–505

¹¹⁴ Naess 2001, 506

¹¹⁵ Marten 2001, 157

¹¹⁶ Marten 2001, 157–158

¹¹⁷ Cote and Nightingale 2012, 477

¹¹⁸ Marten 2001, 100

¹¹⁹ Barthel et al. 2015, 1

The habitat legacies from the long-term history of agriculture could illustrate the SES thinking. The agricultural development has led to a variety of meadows, ardent, ponds, agroforestry areas and hedges as a cultural landscape. This development has become generators and preservation for biodiversity. To maintain this, a management rooted in history, regional context and continuity must be present. This could be applied through the preservation of social-ecological memory or local ecological knowledge (LEK). LEK is knowledge held by a local group or person about the local ecosystems and which is captured and transmitted over time¹²¹. One way to increase the local knowledge and/or LEK is through collective management and different forms of participation in outdoor recreation, which promotes shared history and create knowledge that can be transferred between generations¹²².

SES is especially interesting in urban areas, because of the human dominance and important activities. Since cities also are affecting the global ecosystem, the urban population needs to have a meaningful interaction with urban ecosystems, to increase the understanding of ES (E. Andersson, Barthel, and Ahrné 2007, 1267).

To make citizens involved in the management needs to come from the ability to feel a place attachment¹²³. Therefore, place attachment could increase both social sustainability and ecological sustainability.

5.1.3.2 Ecosystem services (ES)

The relationship between the social and ecological dimensions of a sustainable development has been explored in previous chapters. To add to this view, ES explain how ecosystems are substantial for human wellbeing and survival.

A common definition of ES is that "ecosystem services are the conditions and processes through which natural ecosystems, and the species that make them up,

¹²⁰ Andersson et al. 2014, 446, 448

¹²¹ Andersson, Barthel, and Ahrné 2007, 1268; Andersson et al. 2014, 449; Elmqvist et al. 2013, 24

¹²² Andersson et al. 2014, 449; Andersson, Barthel, and Ahrné 2007, 1268

¹²³ Andersson et al. 2014, 449

sustain and fulfil human life"¹²⁴. ES is used to operationalize the relationship between the ecosystems and humans' welfare and survival, in order to clarify the links as well as the effect¹²⁵. ES categorises the different essential services we humans receive, direct and indirect from ecosystems¹²⁶. Moreover, the concept visualises a web of complex interactions that we are dependent on for food, shelter, water, sense of place experience of beauty and meaning¹²⁷.

The most common classification of ES divides the services into provisioning, regulating, supporting and cultural ones, see figure 2. *Provisioning* services could be food, raw materials, fresh water or medicinal resources. These are often not as common in the urban area as in rural areas¹²⁸. *Regulating* services is effects on the local climate as shading, regulation of air quality, influence of rainfall, wastewater treatment, moderation of extreme events and maintenance of soil fertility as well as the storing and sequencing of carbon dioxide. *Supporting* services includes being a habitat for species and maintenance of genetic diversity¹²⁹. The *cultural* services are defined as the non-material, socio-ecological benefits, which people obtain from interaction with the urban nature¹³⁰. However, this classification has been criticized for not being useful for different assessments, practical accounting and landscape management for example, and that it should be redefined. Nevertheless, in order to see the relation between nature management and human well-being the classification is functional¹³¹.

¹²⁴ By Daily 1997 cited in Jansson 2013, 285

¹²⁵ Jansson 2013, 285

¹²⁶ Bolund and Hunhammar 1999, 295

¹²⁷ Jansson 2013, 286

¹²⁸ The Economics of Ecosystems and Biodiversity 2015; Haase et al. 2014, 413; Jansson 2013, 286

¹²⁹ The Economics of Ecosystems and Biodiversity 2015

¹³⁰ The Economics of Ecosystems and Biodiversity 2015; Haase et al. 2014, 413; World Resources Institute 2005,

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¹³¹ Jansson 2013, 286

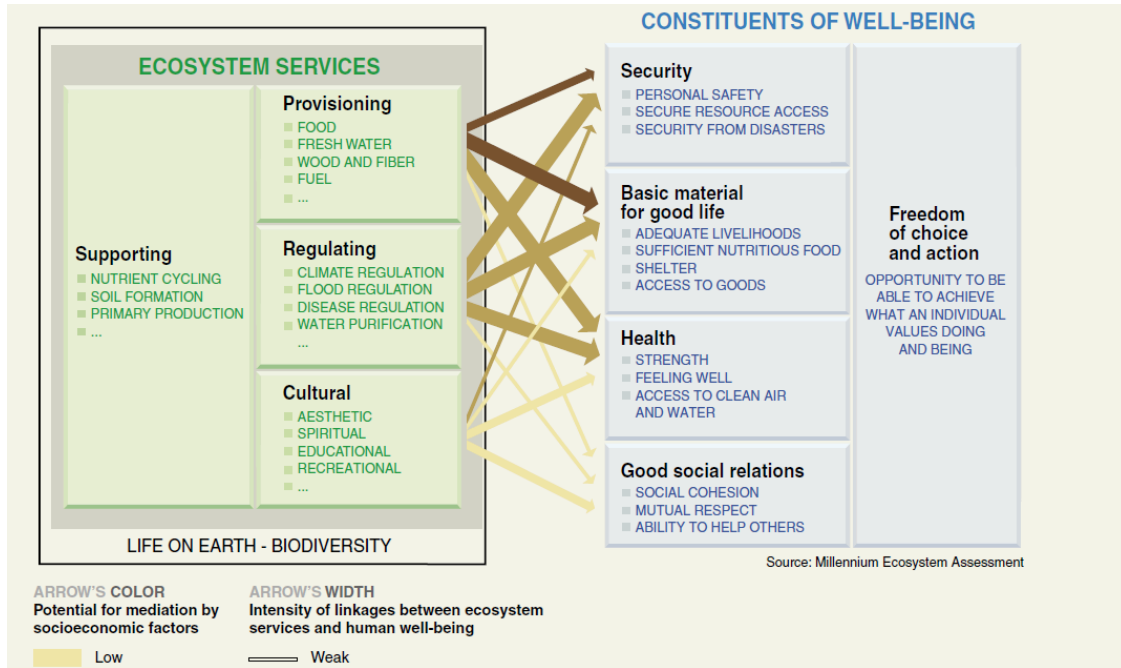


Figure 3 - The linkage between ES and human wellbeing¹³²

The human population is affecting almost every ecosystem today. To reach a sustainable development, protection and a sustainable use of ES is needed. Here, a social-ecological approach could be a key to create a sustainable usage¹³³.

5.1.3.3 Urban ecosystem services

Cities are complex systems, which are interacting and co-adapting with complex ecosystems. The cities are consuming a lot of ES¹³⁴.

It is important to remember that most ecosystems consumed in the cities are generated outside the urban areas¹³⁵. Hence, they still do depend on the connectivity between green spaces and different types of habitat¹³⁶.

Studies on urban ES are focusing on the human well-being connected to these¹³⁷. The best-known ES in urban areas are the cultural services. The services include health,

¹³² World Resources Institute 2005, vi
¹³³ Haase et al. 2014, 414
¹³⁴ Haase et al. 2014, 413
¹³⁵ Andersson et al. 2014, 445; Jansson 2013, 286
¹³⁶ Andersson et al. 2014, 450
¹³⁷ Andersson et al. 2014, 445

recreation, cognitive development, aesthetic values and spiritual experience, including a sense of place¹³⁸. Cultural ES are often seen as intuitive, subtle and implicit. Therefore, the evaluation depends on individual and cultural assessments¹³⁹.

The green infrastructure in urban areas is creating a large variety of ES¹⁴⁰. These ES creates a human well-being in cities, as recreation, better air quality and noise reduction. However, the urban landscape is also putting a large pressure on ES, especially on biodiversity when cities expand on virgin land. Biodiversity is the basis for all ES. The social-ecological perspective is much needed in order to decrease the threats many cities are facing today, as heat waves and flooding¹⁴¹.

Both the social and ecological aspects of sustainability must be understood in order to create an urban sustainable development. Social sustainability, SES and ES should be seen as vital concepts to help understand how to manage green spaces in a way that increases the sustainability.

Throughout the thesis, six concepts will serve as tools to describe and research how the different green spaces contributes to social and ecological sustainability, (1) integration, (2) participation, (3) place attachment, (4) safety, (5) social cohesion and (6) awareness of sustainability.

6. Method

This is a qualitative study with a cross-sectional design. A cross-sectional design is used to research several cases and research the variation in the cases¹⁴². Because of the aim of the thesis, to explore how green spaces could contribute to sustainable development, a cross-sectional design was valid, since several methods were needed in order to provide a holistic view. However, the chosen cases are green spaces in

¹³⁸ The Economics of Ecosystems and Biodiversity 2015; Haase et al. 2014, 413; World Resources Institute 2005, 40

¹³⁹ Milcu et al. 2013, 1

¹⁴⁰ Andersson et al. 2014, 446

¹⁴¹ Haase et al. 2014, 413–414

¹⁴² Bryman 2002, 63–64, 76

Gothenburg and the thesis comes close to a case study, as in Bryman's (2002, 76) example. The green spaces were selected out of the seven cases within the main project, Valuation of ecosystem services provided by urban greenery.

A combination of observations and interview increases the holistic understanding¹⁴³ and makes it possible to study both verbal and non-verbal behaviour. Therefore, this is a suitable approach in order to study the interaction between people as well as between people and the biophysical space. In this study, empirical material was gathered from observations, semi-structured interviews and official written and verbal information. This empirical data will provide the material needed to understand the social interaction and usage of the green spaces, as well as to get a deeper understanding on how people perceive nature and ES.

6.1 Selected green spaces

Three green spaces were selected. These three are different in forms of location, terrain, neighbourhood housing, but similar in the sense they are close to residential areas. Two areas are urban woodlands (Guldhedens Nature site and Titteridamms Nature site) closely connected to the surrounding neighbourhoods. The third is more of a grassy park with a smaller mountain surrounded by a dense residential area (Sörhallsparken)¹⁴⁴. Two areas were deselected because they were not public places (Wieselgrensplatsen and Änggårdskolonin), a third since it had no obvious access to people (Skansen Lejonet) and the fourth one was rejected because of its position as a city park, rather than a neighbourhood park (Kungsparken).

6.2 Observation

Observation as a method usually focused on what happens at a particular place, to follow the chain of events. Aspers (2007) suggest that you first take a look at the broader picture and later on go in to details. By doing so, you could understand the parts by studying the whole picture, which will also lead to a better understanding of the holistic view¹⁴⁵.

¹⁴³ Aspers 2007, 109

¹⁴⁴ In the research project, the mountain is not included in Sörhallsparken. I decided to add the mountain to my study in order to understand how the difference in the structure is changing the patterns of the visitors.

The observations in this thesis studied how people are using the three green spaces. The data gathered from the observations contained the usage of the green spaces; how and in what parts of the areas people are moving, what they do and in what constellations they are there. To know what to observe, theory was used as a framework to locate certain aspects to observe. However, in order to follow the field of observation, one sometimes need to go outside the predefined theory to follow what happens, which makes it important to notice and document what sometimes might seem to go beyond the research question, in order to get the full picture¹⁴⁶. By doing so, I could follow the themes but make the theory dynamic and able to adapt to new information.

Field notes are done in order to describe what is happening in the field, the people, situations, the environment and impressions of the field¹⁴⁷. Therefore, field notes were produced as written notes and photographs. To get a broader understanding, three observation occasions were carried out in the early spring, two at weekdays and one at the weekend. In late spring there were two occasions with observation, one during a weekday and one during weekend. The observations were about one hour each.

As part of the observations, shorter structured interviews were made. This type of interview can be done in order to in an easy way get a view to add to the observations. Structured interviews are not done in order to get the deeper thoughts, but works well to answer specific questions¹⁴⁸. In this case, they provided data about the purpose and frequency of the visits in the green space as well as a first assessment of the respondents' perception of the green space. Moreover, the interviews were a tool to make contact with possible respondents for the longer interviews.

One important limitation regarding the observation data was that it only shows the usage during spring, even though the observations were contained at two different time periods in the spring. It was not possible to solve otherwise due to the time limits

¹⁴⁵ Aspers 2007, 111

¹⁴⁶ Aspers 2007, 100–101

¹⁴⁷ Aspers 2007, 121

¹⁴⁸ Aspers 2007, 111, 143

of the thesis. Unfortunately, it was a cold spring, so the observations cannot say enough about how the patterns change from cold to warmer weather. The longer interviews complemented to the knowledge about how people are using the green spaces throughout the whole year.

Worth noticing is that people were very helpful, most people took the time to answer the short questions in the green spaces. At total I talked to 78 people during the observations.

6.3 Thematic semi-structured interviews

The second part of the study was to conduct thematic semi-structured interviews. The purpose of the interviews was to gather data of the respondents' own perceptions of the green space, nature and ES, as well as a deeper understanding of the social interactions made in the green space.

Aspers (2007) describes semi-structured interview as a way to open up for different responses but to still keep to the questions¹⁴⁹. Qualitative interviews make it possible to let the interview follow the interest of the respondent and become flexible¹⁵⁰. This is important to this thesis in order to reach the respondents perception of green spaces. The interview guide, with the pre-decided questions could be expanded during the interview depending on the answers. Still, generally it followed the pre-decided order¹⁵¹.

The interview guide was developed based on the theoretical framework and contained themes and follow-up questions. In order to make the characteristics of the respondents more visible in the thesis, I decided to use codes, as SF45, which means that the interview took place in Sörhallsparken (S), with a female respondent (F), who was 45 years old (45).

¹⁴⁹ Aspers 2007, 143

¹⁵⁰ Bryman 2002, 413

¹⁵¹ Bryman 2002, 415

When doing qualitative interviews it is important to remember that the selection is not made to create a sample that is representative, it cannot say much about the distribution or frequency. Rather, it shows a view and a variety.¹⁵² 38 phone numbers and e-mails were gathered from the observations in order to address people for longer interviews. Out of these, 15 accepted to do the interview. Therefore, the selection of the longer interviews had to be adapted to the people who accepted to do a longer interview. The respondents were people who live less than ten minutes away from the specific green space.

The interview study contained 15 face-to-face interviews. After 15 interviews, the result started to feel saturated and sufficient. My first thought was to conduct the interviews in the green space in question, which I also did with five interviews. However, because of the weather and the respondents choice, the other interviews were done either in nearby cafés or in home of the resident. Overall, I did not see any relevant difference depending on the place for the interview.

6.4 Analysis

The empirical data was coded and analysed by a thematic model, a deductive sorting of the interviews and observations divided into the six concepts from the theoretical framework, and where the material was interpreted by the theoretical themes, as described in Aspers (2007, 169, 176). Since place has an important focus in this thesis, the analysis was done one place at a time in order to fully understand the potential in each green space. The interviews provided an inside view of the usage of green spaces and my observations contributed to an outside, contemplation of the movement and activities of people in the areas.

6.5 Critical reflections and ethical considerations

When using qualitative methods as observations and interviews, it is important for the researcher to be aware of ones own perceptions in order to not affect the result. A concern with observation as method is that the observers might replace the study objects' view with their own¹⁵³. In order to get a clear view you can use the theoretical framework to see what to look for, but also see outside the framework to

¹⁵² McCracken 1988, 17

discover perceptions and perspectives, and be able to adapt the frame to an unforeseen aspect¹⁵⁴. By observing and becoming a visitor in the green space and by doing both short structured and in-depth interviews with visitors, I have tried to understand the visitors' perception from different angles and with open eyes. However, by being a participant as well as an observer in the green spaces, my own perception of the green spaces will affect the thesis to some extent.

A problem regarding this interview study is the fact that most green spaces in Gothenburg has a temporary status in the eyes of the public. A majority of the respondents had, at some point, heard of development plans at the particular green space or seen other green spaces in the area be replaced with buildings or other development plans. Therefore, people might be afraid to express negative thoughts about their green spaces, if they feel that it might affect the outcome of a development program. Moreover, people might feel a need to talk about their green space in positive terms in order to strengthen their position. Though, this also says a lot about their perception of the green space. It should be clear that not all the respondents were against development in the green spaces. Yet, you need to keep in mind that the respondents might have a purpose of doing the interview, as well as by giving me the answers they give.

¹⁵³ Aspers 2007, 108

¹⁵⁴ Aspers 2007, 108

7. Study area – the green city of Gothenburg

Gothenburg is the second largest city in Sweden with 543 000 inhabitants (Göteborgs stad 2015). Gothenburg is located in the west coast of Sweden. This thesis focuses on three green spaces close to residential areas in Gothenburg. The similarities between the three sites are their focus on greenery, trees and lawns, park benches, but not a lot of planned activities. The differences in the biophysical features are that two green spaces are compact woodlands without a clear sight while the last one is an open park area.

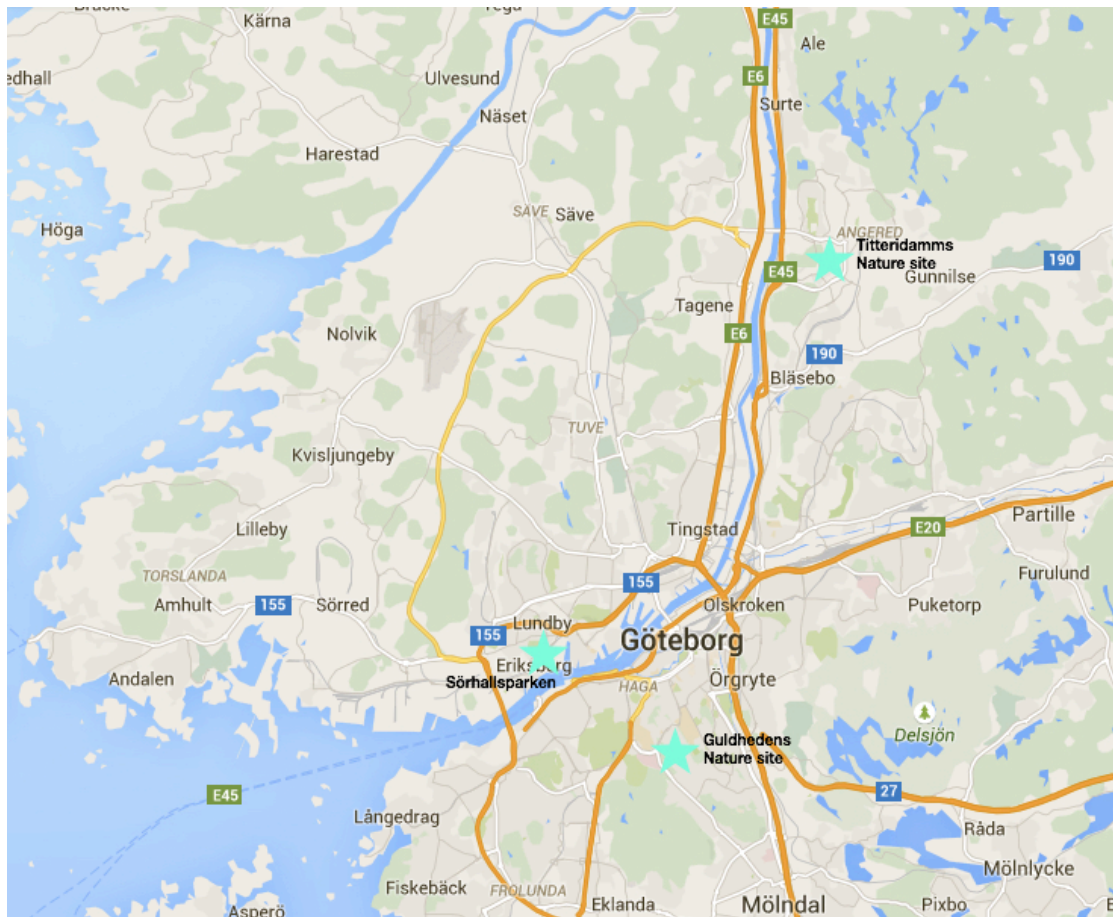


Figure 4 - The case studies (Google Maps 2015)

7.1 The different green spaces

	Guldheden Nature site	Sörhallsparken	Titteridamms Nature site
Distance to city center (Brunnsparken)	3,1 km	3,9 km	14,3 km
Size (approximately)	300x500 m	200x400 m	500x1000 m
Type of green space	Urban woodlands Walking paths View	Park with mountain Playground Walking paths View	Urban woodlands Walking paths Pond
Short interviews	25 in green space, 4 outside green space	25 in green space, 4 outside green space	8 in green space, 12 outside green space
Type of residential areas in the neighborhood	Apartment buildings, 69 percent tenancies (Göteborgs stad 2013)	Apartment buildings, mostly condominium associations (Utvecklingsavdelningen 2015)	Small houses, condominium associations (from interviews)
Expected activities (planned from the municipality)	Flowering, play, picnic, walk, outlook, rest (Göteborgs stad, Park och natur 2005)	The lawn: Bath, flowering, green oasis, play, meeting spot, picnic, party games, rest. The mountain: Flowering, play, nature, experience, picnic, walk, outlook, rest (Göteborgs stad, Park och natur, 2007)	The pond: Green oasis, play, rest. The forest: Play, nature, experience, picnic (Göteborgs stad, Park och natur 2006a)
Long interviews	6	5	4

Figure 5 - the different green spaces

7.1.1 Guldheden nature site (GNS)

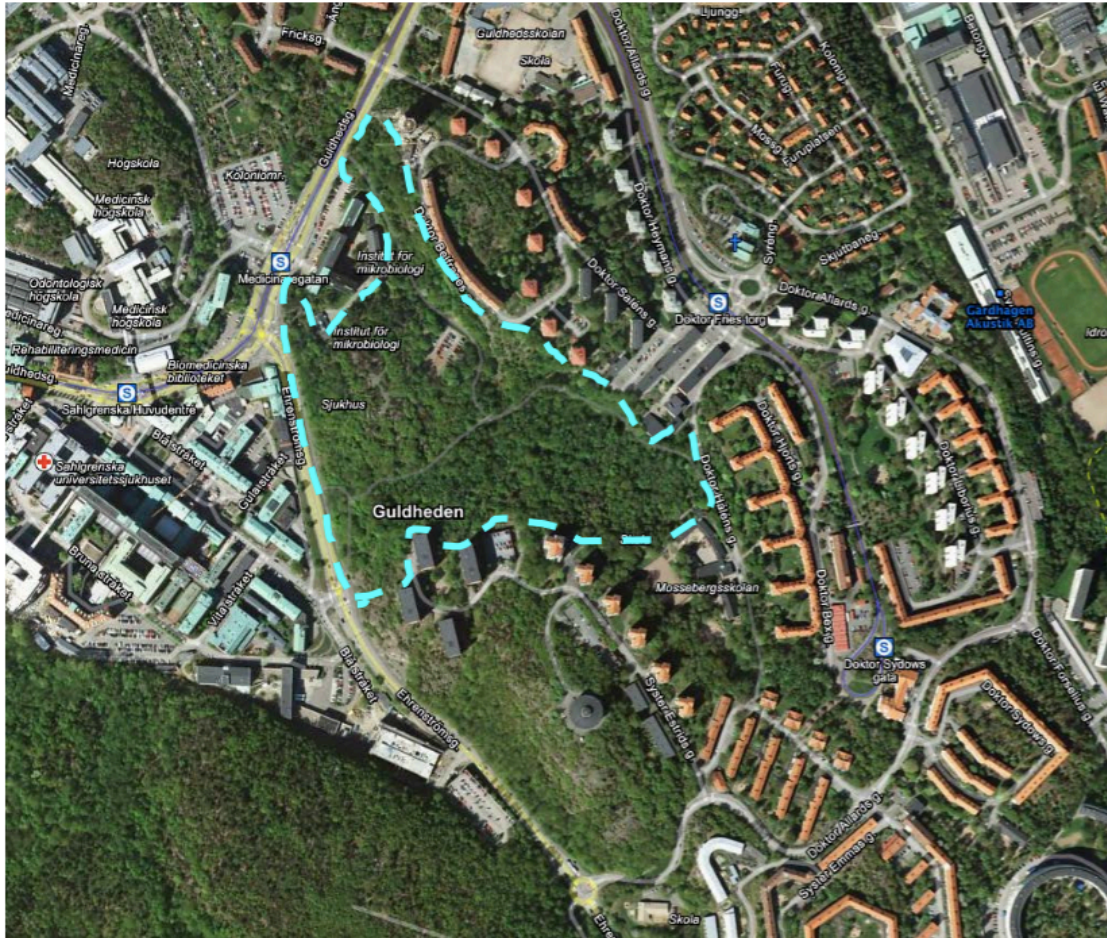


Figure 6 - GNS¹⁵⁵

Guldheden Nature site is part of Guldheden, a central area in Gothenburg. The green space is an important part of the area to connect the different parts of Guldheden through walks in the green space¹⁵⁶. Most apartments in Guldheden are rental apartments¹⁵⁷.

Around GSN there are a large variety of green spaces, a city park called Slottskogen, a botanical garden and a larger nature area, Änggårdsbergen. GNS is to large extent urban woodland with a terrain. The area seems unplanned and left to grow on its own.

¹⁵⁵ Figure from the main project; Evaluation of ecosystem services provided by urban green space

¹⁵⁶ Länsstyrelsen Västra Götalands Län 2015

¹⁵⁷ Göteborgs stad 2013

There are walking paths through the whole area, but also smaller paths within the



Guldhedens Nature site

forest, showing that it is well visited. There are benches next to the walking paths. Also, rare bird species as Lesser Spotted Woodpecker is found in the area¹⁵⁸.

The area gives a natural feeling; the sounds mostly come from the birds. The greenery is dense but you can always see houses at a distance.



The outlook in Guldhedens Nature site

¹⁵⁸ Arvidsson 20150331

7.1.2 Sörhallsparken

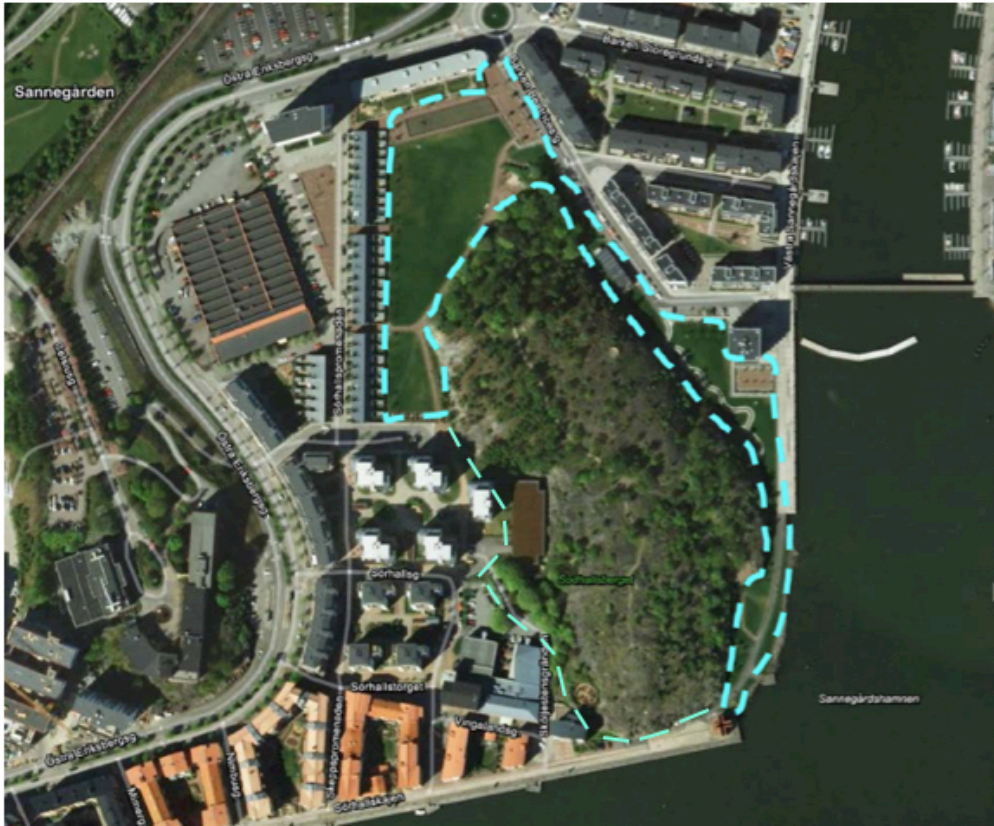


Figure 7 - Sörhallsparken¹⁵⁹¹⁶⁰

Sörhallsparken is close to Göta river and one of few green spaces in a densely built



Sörhallsparken

area. Besides Sörhallsparken and the river, the area is not perceived as green. The mountain used to be populated, but the last buildings were removed when Eriksbergsvärdet expanded¹⁶¹. The buildings around Sörhallsparken are mostly condominiums¹⁶².

¹⁵⁹ Figure from the main project; Evaluation of ecosystem services provided by urban green space

¹⁶⁰ The mountain is added for this thesis, therefore the figure is modified by author

¹⁶¹ Schröder 20150411

¹⁶² Utvecklingsavdelningen 2015, 7

The structure of the green space is a large open lawn and a smaller mountain with more trees and a small pond with salamanders and more wild nature. The green space consists of a playground, an artificial stream, benches and a view over the river and the other side of Gothenburg. There are walking paths both in the grass and on the



Sörhallsparken

mountain. The green space is open and easy to overview and well planned. The noise comes from wind and the noise from the city centre.

8. Result

In the first part of the study, observations and short interviews with the visitors were conducted. At the first occasions, the areas were not well used. However, in the following occasions, the number of visitor increased slightly and some visit patterns changed; the green areas between the walking paths were used more e.g. people were sitting in the grass or at benches, observing and interacting with the nature. The second part was to do interviews with visitors in the area. The interviews broadened and deepened the view of the green spaces and added knowledge of how the area is used and perceived by the residents in the area. The result section is divided by place and the interviews are structured by the six concepts interaction, participation, place attachment, safety, social cohesion and awareness of sustainability, discussed in the theoretical framework of chapter five, in order to better understand the potential of each green space for social sustainability and environmental learning. The chapter ends with a section presenting the visitors' knowledge of ES.

8.1.1 Guldhedens Nature site (GNS) - observations

During the *early spring observations* (20150228-20150308), the forest ground was wet and not very accessible. On the exposed rocks at the mountaintop, one can sit and see the view over Gothenburg and the nature is more available. Signs of peoples usage of the green space was found, as tree houses built up by schoolchildren. Moreover, in the south of the area there was a small community garden, which seemed informal since there was no contact information or a name. In the green

space, there are several nesting boxes in the trees. From these findings, it seems as the green space provides an opportunity for people to actively produce a locality through their involvement in the area, but also for environmental learning



Allotment garden in Guldhedens Nature site

and awareness for sustainability. The green space also creates a relation to nature, both through the garden, nesting boxes and through using the woodlands for building tree houses.



Guldhedens Nature site

During the early observation occasions most visitors were walking along the walking paths, except for the schoolchildren, who played in the forest. There were more adults walking in the area during the weekends.

In the early observations, one woman started to talk to me about a cat we both saw. Another interaction coming from the other visitors was a group of women who asked me for directions. Except for this, there were not many people addressing me in the green space.

All the respondents of the short interviews were using the green space, more or less. The respondents were walking through, strolling or walking the dog. Therefore, the vast part of the activities included walking, either for exercise or other reasons.

During the *late spring observations* (20150503-20150506), the wood anemone has blossomed and most trees were green. Many birds and bumblebees were visible in



A tree house in GNS

the forest and the areas provided blueberry sprigs and raspberry bushes. The walking patterns have not changed from the last observations but more people were sitting and observing the nature. Another man was walking slowly as if he was enjoying the environment.

A majority of the interviewees were using the green space every day. One example of the usage came from people who worked at Sahlgrenska University Hospital. They



Wood anemones in GSN

described the area as important to calm down after an intense working day. Other people used the green space to observe seasonal differences, to see animals, and to be close to nature. Mostly, the visitors walked alone or in pairs, or with their dogs. One man, who was walking in the forest, described how he talked to neighbours in the area in order to try to influence the development of the site, to get someone to take better care of the area and increase the feeling of safety.

8.1.2 Guldheden Nature site – interviews

In Guldhedens Naturesite, five semi-structured interviews were done. Figure 8 contains information about the respondents.

Name	Gender	Age	Employment	Where we met	Home country
GM42a	Male	42	Graphic designer	On his way home from work	Sweden
GF34	Female	34	Student (Swedish for immigrants) and preschool teacher	On a walk	France
GF80	Female	80	Retired (earlier: accountant)	On a walk	Sweden
GM42b	Male	42	Calculate engineer	On a walk with a friend	Sweden
GM66	Male	66	Retired (earlier: teacher)	Walking through	Sweden

Figure 9- Respondents in GNS

Most of the respondents are using the green space less during winter and early spring, this could be an explanation to why I did not meet many people in the green space during my observations.

8.1.2.1 Social interaction and social cohesion

GF80 is taking walks through the area every day, alone or with friends. GM42a is using the green space mostly as a walk to work or with the dog. Hence, he is doing a lot of trips with his family in the area as well. He does not see the GNS as a social place. The green space does not provide spontaneous get-togethers. The square area, Doktor Fries torg, is a more proper place for meeting, according to him, which shows how different areas provides different expectations. However, when he is walking the dog he meets other dog owners and describes the dog to be an icebreaker.

" (...) there are these initial, three-four phrases about the dog who breaks this... and then you can talk about everything suddenly.

- So you have started to talk to people you do not really know there?
- Yeah, absolutelyⁱⁱⁱ (GM42a)

GM42b, who is not using the green space more than as a walk through, does not get much social interaction in the area. Though, sometimes he and his friends are walking through. One time he and a friend went out looking for an ancient monument they had heard of in Guldheden Nature site, even though they did not find it. In this way, the green spaces do create some social. However, GM42b gets surprised when he sees people sitting on the benches, being social, since he does not see it as a social place. GM42b takes notice of what happens in the area from another angle

“(...) I noticed something this winter actually, it was the first time I was seeing someone come walking from the forest, where there was no forest path (...) I have never, myself, walked in other areas than the walking paths or forest paths. But a man came walking from there, and I actually thought, it was snowy then, so I thought I should check out the footprints to see if it is common that people are walking there, because he was walking away and then I thought that it might be a short cut that they are using.”ⁱⁱ (GF42b).

GM42b is curious about the area and is learning by small interaction with other visitors, even those he has not been speaking to them. This observation opened up the area for him and changed the accustomed practice.

GM66 is also using the green space as a walk through on his way to the botanical garden or Änggårdsbergen, but also as a place for bird watching. He does not meet many people.

GF34, on the other hand, finds GNS important to meet people. She has not been in Sweden for long, just a few months, she uses the green space to meet people, since she does not have many friends. However, she also finds it hard to meet Swedish people and think that it is hard to say hi or smile to strangers. Despite this, GF34

meets people in the green space. During summer, there are many people picnicking and barbequing. She describes how some of her neighbours from other continents brings out food and sit close to the building, and she gets to taste. She uses the green space in many ways and she meets a lot of neighbours in the green space

“(...) they walk their dogs or they are just walking themselves and we end up talking for ten minutes and it is always nice, because elderly people like to talk and they have noticed that they can do that with me” (GF34).

Analysis (social interaction and social cohesion)

How social GNS is depends on where in the area you are. According to GF34, the social activity increases closer to the buildings, but you could also be alone for a long time if you go further into the woods. It also depends on what you do, the respondents using the area as a transit place do not get much interaction. However, unspoken interaction could also create learning about the area. GF34 is not just walking through the area; she spends time there, which makes her meet more people. There are also many children playing in the green space after school. The activities you do in the area affect how much people you meet and talk to.

There are not a lot of activities in the area that increases interaction and social cohesion. It seems hard to get to know new people. However, GF34 is initiating talks with strangers as a way to become integrated in Gothenburg and to get friends. A person who initiates talks could contribute to social cohesion. GM42a is making contact with others through his dog, but might depend more on the dog than the green space.

8.1.2.2 Participation

GM66 talks about current building plans for the Guldheden area and how "they" (i.e. city planners¹⁶⁴) are reducing parts of the green space every time. For him it is a fight to be taken, in order to save the green space. GM66 is part of an association for saving

another green space in the area, Mossen. GF80 is also afraid that the municipality will build houses on the green in the area. Once, she was part of a tour made by the city of Gothenburg to discuss possible plans.

“- Yes, I think that it [the green space] is very important, so I hope that it will not be built upon. There has been some talking about that, many years ago, and then they came and showed how they were supposed to build.”ⁱⁱⁱ (GF80)

In summary, the participants are not impressed by the municipality plan. According to GF80, the green space is more valuable for them than new buildings. Most respondents, except for GF34, are discussing the threat of development in the area and are well aware of protests groups. GM66 and GM42a and GF80 are, to some extent, supporting this from a distance.

Analysis (participation)

The area does not provide much possibility to participate in activities. However, there are protest groups, which are an important way to participate, and the man who talked to his neighbours about creating a better environment in the green space, his actions lead to interaction and participation.

8.1.2.3 Place attachment

For GM42a, GNS is an important area because it is quite wild and it creates a ground for play. The wild nature is unique in the area. Also, GM42b likes the uniqueness of the wild, unplanned nature.

GM66 has created another form of attachment to the green space

"(...) I do have emotional bonds, when my son was born, 34 years ago,
(...) down at Sahlgrenska, I ran between, and then I picked, it was in

¹⁶⁴ Authors comment

April, so I picked wood anemone and brought it with me (...). And that is a strong memory for me."^{iv} (GM66).

This emotional bond creates a place attachment for GM66.

GNS is a place that is, by the majority of the respondents, seen as threatened by development of buildings. GM42a describes how people are gathering groups to change the outcome. These groups, and others, are creative in trying to find other solutions to solve the housing shortage in Gothenburg.

GM66 is most active in the nature of all the respondents, not just, or even most, in GNS. However, he did put up a nesting box for tawny owls, when he saw that their home tree had blown down. According to GF34, the schools are also building nesting boxes and nurturing the birds with food when it is cold outside.

Many respondents describe that they moved to Guldheden because of the green spaces, both GNS and other greenery in the area.

Analysis (place attachment)

The wild nature increases the place attachment. The respondents are proud and curious about the area. The green space is important to them. The plants and the animals are important, as is the possibility to hide away and to calm down. GM66 has created personal, emotional bonds, which he will have for life.

There are signs of small-scale management of ecosystems and production of locality through the possibility to put up tree houses and taking care of nature. This possibility also increases a sense of place attachment.

8.1.2.4 Safety and security

Not one of the persons I have interviewed feels unsafe in the area. However, the green space is not used much during night-time. GF80 does not want to go outside after nightfall, but that is not specific to the green space. GM42b has friends that do not

walk through the area during night-time, mostly women. Also, a respondent from the short interviews describes the GNS as unsafe for his wife and daughter. Worth noticing here is that no one feels unsafe themselves, but anticipates that others might feel insecure in the area.

Analysis (safety)

The area is not perceived as an unsafe place. However, some respondents can imagine that the dense unmanaged design of the area creates a feeling that it could be unsafe.

8.1.2.5 Relation to nature / environmental learning / awareness of sustainability

GM42a says that the behaviour and topics for conversation change in the green space, for both children and adults. For children, the area is an enormous playground. I ask him why it is important to be in the nature

"- It is important for everyone to use their bodies and to learn. For children, it is balance and muscular system, but also to see what is there and how to use things in nature, use the imagination. This seems old-fashion but, like cone-animals and sticks and, it is like, unbeatable. You notice, when you take the kids down there that they are playing in a whole other way. Well, it becomes another kind of playing. But for adults to, (...) the conversation becomes more observing, because there is so much to see, even though not much is happening really. But it is at that level that, well, there is always something to view. You're not fed with something, there is another way of give and take"^v (GM42a)

GM42a describes GNS as something he and his child explore. They play and following a stream during winter and pick raspberries during summer. GM42a consider nature as important for many reasons. One reason is that he thinks that people need to see something that is there for its own purposes. He thinks we need to have nature close to accept and adjust to nature, to floods and fallen trees.

GM42a describes how the closeness to nature shapes what you want and what you want to give your children and yourself. He is also using the green space to teach his child about nature

"- (...) further down the street there is a small colony of hogweed (...) you can point at those and say that they might not be so smart to touch, for example" ^{vi} (GM42a)

Both GM42a and GF34 see how spending time in nature teach children to take care of the nature. GF34 describes the GNS as a way to get away from the city without leaving it. She likes to walk around, watch the animals play, relax or sleep on the exposed rocks. GNS is a vast part of her daily life.

A larger colony of jackdaws and crows takes over part of the area at certain times in the season. This makes part of GNS inaccessible during this period of time, but GM42a describes this as unique, and that it is okay to take a detour this time of year. Also, GM66 thinks that the jackdaws are sort of creepy, but that they also need a place to be.

GM66 is using the green space for bird watching, looking for owls and other birds. He explains how animals need certain areas to survive, so the site is not mostly for him but for the birds and the animals in the city.

GF80 and GF34 are both interested in watching birds, animals and follow the seasons and vegetation in the area.

Analysis (relation to nature)

The area stimulates thoughts about nature, provides environmental learning and is as a place for exploring nature, as well as a place for the animals to live. Because of the wildness of the area, the animals and birds is a natural element, the jackdaws for example, which are not pleasant but respected. The area also provides facilities for

specific conversations and closeness to nature. GNS also provides relaxation and disruption from the city.

It is not the green spaces per se that makes GM66 teach his son about birds, he has a particular interest, which he brings on to his son. However, the green space contributes to their daily bird watching.

8.2.1 Sörhallsparken - observations

In two of the *early spring observations* (20150226-20150307), the weather was cold and most people, a majority with dogs, were walking through. A few adults with children were playing in the playground. Otherwise, a few people were visiting the area, some people were running or walking at the boardwalk by the water. However, at one occasion, the sun was warm and shiny. Then, more people were moving around, even though it was just a weekday afternoon. Several dog owners were



Birdfeeder in Sörhallsberget

playing with their dogs and children were playing football. Also, there were several people sitting on benches. However, only four people were spotted at the mountaintop during all early spring observation. People walked alone or in pairs, most often with dogs or children and the playground was full of people. On the

mountain there are several nesting boxes and examples of where people have put up food for the birds.

During the *late spring observations* (20150502-20150506) the patterns has changed in Sörhallsparken. Now I met more people at the mountain, picnicking, walking or watching the view. There were more people at the mountain than the grass plot. Small children were playing with the artificial ditch and several women were playing with their children by the fountain. One fireman started a conversation with me, when he was looking for a reported fire in the area. Down at the grass plot people were

standing in gangs observing the same fire. This created some form of interaction between people.



The outlook in Sörhallsparken

The respondents of the shorter interviews were either walking the dog, passing through or playing with their children. The observations done in middle of the afternoon at a weekday, most people in the green space where either unemployed, on parental leave or retired, only a few were working.

However, during the weekend

observation, most of the visitors were workers. All respondents were using the green space more or less. However, several people I met at the boardwalk told me that they were using the area around Sörhallsparken, but not the actual green space. From the people using the area, the result concluded that the mountain was appreciated, mostly as a unique green oasis in the area, and not the least as one of few dog friendly places in Eriksberg.

8.2.2 Sörhallsparken – the interviews

In Sörhallsparken, six semi-structured interviews were done. Figure 9 contains information about the respondents.

Name	Gender	Age	Employment	Where I met them	Home country
SF17	Female	17	Student	On her way from school	Sweden
SF32	Female	32	Parental leave (educated in finance)	In the playground	Sweden
SF61	Female	61	Child-welfare worker	On a walk through	Sweden
SF70	Female	70	Retired (earlier: in the bank sector)	On a walk	Sweden
SM60	Male	60	Retired (earlier: carpenter)	On a walk with the dog	Sweden
SF59¹	Female	59	Occupational therapist	Outside the area (does not visit Sörhallsparken)	Sweden

Figure 9 – Respondents in Sörhallsparken

8.2.2.1 Social interaction and social cohesion

SF17 has grown up in the area, Eriksberg, and is well familiar with Sörhallsparken. She walks through or spends time there with her friends, just sitting and talking or doing sports. One specific reason for them to spend time there is that the greenery provides a hiding place, where they can spend time away from other eyes. SF17 expresses the need to be out of the house and to be able to talk without being monitored. The place is important for students, they are bored and do not have much else to do. She sometimes decide to meet someone, but as often she meets friends there spontaneously. SF17 thinks that it is important to be able to meet in the city without costs, which green spaces can provide.

Sörhallsparken is important for SF32 since she is on parental leave. She is in the green space about five days a week, to let her children play and to meet other adults. She recognises most of the people at the playground

" It is a way to meet. I see it from my point of view now, since I am on parental leave and home, it can be really lonely (...). At a playground, when you bring children with you, it is very easy to start to talk to people. Therefore, it is as much for my sake as for them. "^{vii}
(SF32)

Mostly she just meets people at the playground, but some parents have become closer friends to her.

When SF59 is in the green space, she is mostly with her grandchildren or at the mountain. She thinks that it is a social place because there are many people sitting on the grass, having picnics, playing football and so on.



Sörhallsparken

SF61 is often using the area. She meet neighbours and recognises people she meet. Also, her condominium association sometimes uses the mountain

"We have had a shorter quiz there actually, the condominium association in which I live (...) eating some strawberries or a glass of wine or, you know, closing-party up there, so that is nice to, an important part. It actually is."^{viii} (SF61)

SF61 sees the mountain as a social place with many visitors. She goes there with friends and family to enjoy the greenery. For SF61 there is a sectioning between people and activities, she is using the mountain to look at the view and walk, while dog owners, children and parents might use the grass section more. Even though she

is not using the lawn, she thinks it is important because it creates an open space in the area, which is quite dense.

SM60 is mainly using Sörhallsparken for his daily walks with his dog. He walks and plays with the dog at the grass section, far away from the playground to avoid having the dog loose around children. He does not have much contact with other visitors in the green space. However, he talks to other dog owners, so it is social in that sense.

SF70 does not meet much people here. She recognizes some people, but she does not see it as a social place.

SF61 talks to the people she meet since she has got to know much people in the area. She thinks most of the people who lives in the area are middle aged or older.

SF32 describes that most of the people in the area as quite similar, "parents of young children with a university degree". SF17 sees the visitors of Sörhallsparken as young people with nothing else to do, as herself. When I talk to SM60, he thinks that he is the average age in Sörhallsparken. So, there is a difference in the perception about who lives in the area, all four thinks that most people in Eriksberg are similar to them, even though they are not particularly alike. This could show a lack of social cohesion and integration, with different groups using the area without really meeting, even though they are there at the same time of day. However, this must not be a problem, it could also be a way for different groups to feel safe in the area and increase the cohesion within the separate groups.

Analysis (social interaction and cohesion)

Depending on your reason for visiting the green space it becomes a social place or not. To most respondents, Sörhallsparken is not a place you go to in order to meet unknown people, but rather people you know. However, you can if you want to, as SF32 and SM60 describe, when you have a common interest. This interaction can create a form of inclusion, which seems more common in the grass section than on the mountainside. Though, most people who visit Sörhallsparken live in the area, so it does not create a social cohesion on a city scale.

Different user groups do not seem to interact much; students' play for themselves, dog owners keep in one place and children and parents in another. Even if different groups in the area are using Sörhallsparken, the different activities seems to be separated which leads to interaction within a group, but not between different groups. This might be the reason that most respondents think that they are the average visitor in the green space. However, inclusion could be seen especially between parents of small children, which uses the green space to meet and share their problems and ease up the day.

8.2.2.2 Participation

None of the respondents from Sörhallsparken has tried to participate in the development of the area. Neither of them knows where to turn for protests or suggestions, except for SF32 who describes a sign with a number to call, where she has sometimes called to get things fixed. SF17 is sometimes participating in sport activities with her classmates in the area, in this way the area contributes to active participation.

Analysis (participation and management of ecosystems)

It is not much formal participation or activities in Sörhallsparken, but students are doing sport activities in the grass area. The open area creates opportunity for participation in group activities.

8.2.2.3 Place attachment

For SF17, the area provides peace and quietness where there is less noise from traffic and some hiding places to be alone with friends. She prefers to sit in the green space instead of hard surface areas

"I always prefer to look at nature rather than concrete walls, and rocks might not be so cosy to walk at. Here [on the grass] you might take your shoes of instead, that feels cosier."^{ix} (SF17)

The area is an important daily stop for SF32 and her children. In order to do this, and to enjoy the green space it is important that it is close to home, because of her young children.

SF61 enjoys the historical trace of house grounds and old plants, as an old lilac-bush she has found. She likes history and has read about Sörhallsparken at the information signs you can find in the area. Sörhallsberget is mostly for weekdays but sometimes for a special occasion as a breakfast picnic as she did with her family when her daughter came to visit or when boats, such as Ostindiefararen, arrive to Gothenburg.

SF70 does mainly use Sörhallsparken for walking in the grass-section, but she likes to walk around the mountain.

For SM60 the lawn is important and unique because it is one of few places where he can play with his dog in the area. In most parts of Eriksberg dogs are prohibited. The size of the green space is unique. Most respondents comment on the mountain as a unique contrast that is important to the area. The mountain therefore increases the place attachment.

The respondents are all doing smaller achievements, such as picking up litter.

Analysis (place attachment)

Sörhallsparken stands out as a unique element in the area. Most people are going there for the contrast to the dense residential area, which creates an emotional attachment to the green space. To find an open space that allows activities that other places do not, as playing with the dog, further increases a place attachment because it provides possibilities to perform activities you like. Moreover, the mountain provides a unique structure which all respondents find beautiful. The uniqueness of the green space increases the place attachment.

There are some activities in the area which shows how the visitors in the area are producing their locality, as picking up litter and take care of the place to make it their own.

8.2.2.4 Safety and security

All respondents feel safe during daytime. However, SF32, SF59 and SF70 feel unsafe when it is dark. This goes for all dark places with few visitors.

Analysis (safety and security)

During the day Sörhallsparken is not seen as an obstacle. For some, this change during nighttime since the place becomes empty and dark.

8.2.2.5 Relation to nature / Environmental learning / Awareness of sustainability

SF17 does not think that Sörhallsparken is nature, maybe nature like. She does not go there to be close to nature. However, she thinks that it is important with urban nature since everyone cannot travel much. She, for example, does not have the time to travel far to be in the nature. Furthermore, travelling demands many resources. SF59 does not see the grass area as nature either, but the mountain could be nature.

Most respondents in Sörhallsparken do not express any interaction with nature. However, SF17 is interested in the environment and she does not like litter, so when she sees litter she picks it up and throws it in a trash can, she feels "programmed" to do that. SF32 is also taking up litter when she sees it.

SF32 grew up in the countryside where her grandparents gave her knowledge about nature; therefore she does not think that Sörhallsparken really is nature. However, for her daughter it is, and SF32 is trying to teach her as well, so it is important that you can find blueberry sprigs and other provisions for learning about nature.

SF61 thinks that the urban nature is important so that we do not forget about nature in general

"It makes us think more about the environment and you take your litter home with you, and you protect the green because you feel that it is

important. That people learn to be in the greenery, in nature. That is important"^x (SF61)

SF70 likes to watch the season change; see how the spring comes with the wood anemones for example. She likes nature and plants are crucial for our well being, we get depressed without it. SM60 does not see himself as a nature person. But he enjoys nature, both within and outside the city.

Analysis (relation to nature)

For several of the respondents, the urban nature in Sörhallsparken is important and gives them a closeness to nature, at least the mountain, even though it is seen as small, too small to be nature. Even so, the area is good for smaller children to learn about what nature can bring. The grass area is not seen as nature; it seems too planned and planted. SF17 sees the area as a social place more than a nature place.

8.3.1 Titteridamms Nature site (TNS) - observations

During the *early spring observations* (20150228-20150308), no people were seen in the forest. The only people observed were a few persons by the pond, walking through the area. No one sat down or did other activities. During spring, more people were walking, but still just a few. At the first observation, I did not find a way into the forest and it felt inaccessible. The only part that felt accessible was the glade with the pond, where there were walking paths. However, when the snow melted, walks into the forest appeared and made it possible to enter. The forest was calm and quiet; dears and a variety of birds were spotted. Moreover, a fireplace, an obstacle course and a wooden house were found, which shows traces of people using the forest. There were also several nesting boxes in the trees.



TNS

It was difficult to meet people in Titterdamms Nature site, since it was not much people there. I only got to talk to eight people in the actual area. However, when talking to people, the first feeling I met was pride and place attachment. The nearest neighbourhood, Titteridammshöjden, is named after the pond, Titteridamm. During the spring of 2015, the municipality had started to restore the pond that,



An obstacle course in TNS

according to several people I met, had been neglected for years. People were happy about this and thought that people would visit the park more often when the pond was restored.

One man I talked to was feeding both birds and hedgehogs in the forest. Over all, several people were mentioning different animals in the area that they had seen. Moreover, the newt in the pond seems to be of interest to the people in the area.



TNS

When talking to people in the different neighbourhoods, a conflict came up. One man in Rappedalen and one in Trädgårdsgärdet said that the pond does not belong to them; it belonged to the people in

Titteridammshöjden. This shows that there might be an unwritten territorial separation of the green space between the neighbourhoods. Both these men were old, they also described TNS as inaccessible, in opposite to the respondents closer to Titteridammshöjden. However, a younger boy, as well as some parents I talked to, saw the site as an area for exploring the

nature. The different perception seems to relate to usage and age, as well as what residential area you come from. Moreover, several of the people I met in Rappedalen and Trädgårdsgärdet expressed that they rather went to Vättlefjäll of TNS even though it is further away.

In the *later spring observations* (20150502-20150515), the forest paths became more accessible, but there was still not much people there. However, for the first time I observed people in the forest; a couple with dogs. They talked about how they often pick berries and mushrooms in the area. Furthermore, a noticeable amount of bumblebees were observed.

In TNS no one initiated a talk with me. However, the couple in the forest said hello before me.

8.3.2 Titteridamms Nature site (TNS) – the interviews

In TNS, four semi-structured interviews were done. Figure 10 contains information about the respondents.

Name	Gender	Age	Employment	Where we met	Home country
TF26	Female	26	Graduate in social studies	Outside her house in Rappedalen	Sweden
TM18	Male	18	Student	On his way from school	India
TM65	Male	65	Working with insurance policy	On his way from work	Sweden
TF63	Female	63	Retired (Earlier: social worker)	In Titteridammshöjden, planting flowers	Finland

Figure 10 – Respondents in Titteridamms Nature site

8.3.2.1 Social interaction and social cohesion

For TF63, TM18 and TM65, the pond seems to be the most social place in TNS. They all talk about a place for barbeque that is now going to be rebuilt. Now, the area is

mostly used the younger adults and teenagers, as TM18. TM65 sometimes comes down to the pond to sit and enjoy the view.

TM18 is mostly passing through on his way to school or work. However, when he was younger he used to play there a lot, alone and with friends. He mentions that teenagers sometimes go to TNS to get out of sight “to smoke or to get away from the parents and neighbours”.

TM65 finds the pond to be a subject to start talking about

“Once in a while, you meet people you know when you are on your way to work or returning, you meet and you stop here for a while and talk about the pond. If it is low water stage or whatever there, then the ducks have nowhere to go (...) Often it comes up as a start for the conversation, the pond as a subject. So it happens that you meet then, and if you are not in a hurry you stay and spare a few words. And it might be easier here because of the pond, instead of a larger walking path. Then you might just say hi and walk by”^{xi} (TM65)

He then describes that the pond might lead to longer conversations about other subjects if there is time.

TM65 do not meet people in the forest, but he has seen traces of activities. He does not know the people in the other neighbourhoods in the area. The hill might possibly contribute to the separation between the areas. Still, he thinks that adolescents from other areas coming to the area.

TF26 is mainly spending times with her children in the area, or walking her dog, but sometimes they go there with friends, "maybe two times out of ten". She sometimes meets other people there, but not that often. When she does they say hello

"Yes, that is also another difference between walking in the street or if you meet in the forest, then you most often say hi"^{xii} (TF26)

She thinks that TNS is sort of social, because it is something that she does with her family.

The respondents in Titteridammshöjden are participating in activities regarding the pond, since Titteridammshöjdens condominium association is taking care of parts of the green space. This creates interaction between the neighbours in the area.

Analysis (social interaction and social cohesion)

TNS does not seem to be a social place at first sight. However, the structure of the environment creates opportunities to interact with other people. The nature creates other social meetings than the street. The area creates interaction between the residents in the area. However, from the observations it is clear that there is not much interaction between the different neighbourhoods and that the green space can be separating. In this case, the green space could lead to a decreased social cohesion between the neighbourhoods, even though it strengthens the social cohesion within a neighbourhood.

8.3.2.2 Participation and management of ecosystems

The condominium association, Titteridammshöjden, where all respondents except TF26 live, is taking care of the area around the pond. This involves all residents in Titteridammshöjden.

There are no similar projects with the other neighbourhoods in the area.

Analysis (participation and management of ecosystem services)

The condominium association is providing opportunities for management and participation of the nature in the area, which include all residents in the neighbourhood.

8.3.2.3 Place attachment

TF26 and her children is outside much, often in TNS. Her older two children (three and seven) make wood houses and prefer to be in the woodlands instead of the playground. One of the reasons for her to live here is that they have these green spaces so close.

In Titteridammshöjdens condominium association, they have clean-up days where both adults and children take part. During winter, they sometimes make the pond ready for ice-skating as well. Because of this, they are involved in the shaping of the area, which they seem to get responses to from the municipality. TF63 describes that the participation creates a feeling of safety when everyone knows each other. However, the attendance in the workdays has gone down during the years, and TF63 is worried that it will make the residents less committed and responsible. She does not think that it is a solution to bring in a caretaker; because it will make the area more anonymous. Also, when they were restoring the area around the pond, a lot of the men got to know each other while doing this hard work. TM65 says that one point of having the clean-up days is that people should learn to take care about their environment. TM65 also sometimes calls the municipality when there is something wrong or when they need to empty the trash and picks up litter when he sees it.

TF26 is proud of the area and gladly shows it to people from other areas. She want to show people how beautiful the area is

"(...) many people in Gothenburg needs to know what assets there is in, I mean people from the inner city, what assets there actually are, out in the suburbs. Because it is very often you get to hear that; oh, how beautiful it is out here! People who have not been in Angered, that they have a very negative view."^{xiii} (TF26)

TF26 is the only one who does not seem to have a relation to the pond of Titteridamm. The other three, who live closer to the pond, see it as an important part

of TNS. Both TM18 and TM65 point out that their neighbourhood is named after the pond, that it is a symbol. TM18 describes how he enjoys watching the pond

“(…) what I like most with this is that the pond disappears and then comes back, I find that really cool.”^{xiv} (TM18)

TM65 knows a saying of the pond

“So there was a legend that the maids from Gunnareds farm went up here to mirror themselves, “titteridammen” (looking-in-the-pond), because it was so glassy”^{xv} (TM65)

TF63 did spend much time in the forest when her children grew up. For them it was a special place

“(…) so there is big stone blocks almost at the highest point, this place our oldest daughter called Valen [the whale], and we used to have picnic there when the children were small, “go to Valen”. It is a good recreation area for small children, they learn much about nature, to have it close to them”^{xvi} (TF63)

Analysis (place attachment)

The nature gives place attachment and proudness to the area. People choose to live in the area because of the green space. The pond creates a special bond to the green space, at least for the people living in Titteridammshöjden. The pond gives opportunity to learn about the history as well as to see the development of the area.

The management of the green space provides opportunity for production of locality where the residents create the locality both in the physical place and as a community with shared values regarding the green space. The involvement makes the residents in Titteridammshöjden to increase the interaction with the area. This involvement also creates learning about the place and increases place attachment.

8.3.2.4 Safety and security

All the respondents are feeling safe in the area. However, TM18 describes that he can become scared when it is dark, because he comes to think about horror movies. Even though he feels safe in TNS he likes to bring some person or his dog if he wants to explore new areas.

Analysis (safety and security)

All respondents feel safe in the area but darkness creates an unsafe feeling.

8.3.2.5 Relation to nature / Environmental learning / Awareness of sustainability

TF26 sees the urban nature in TNS as a counterpoint to the urban life, a place to get away from impressions and demands. Natural impressions are important as well as the lack of cars or commercial signs. TF26 thinks that an important function is that you can "just be". Being in the green space makes her relaxed and peaceful.

TM18 lives close to the woods and he likes to explore it. Both TM65 and TF63 really enjoy having the nature around the corner.

Most respondents are picking mushrooms in the area. When TF26 and her children are in the forest they look for animals and inspecting trees. In the forest, they have found both hedgehogs and newts, which are sacred in the area.

TF63 observes the birds, plants and the mushrooms. If she finds something she does not know about, she goes home and reads about it. They used to look for insects and newts in the pond, when her children were small.

TM65 thinks that nature is important to have close, to remember that it exists.

Analysis

The closeness to nature makes the respondents stay in the area. Nature is important as it is undemanding, creates calmness and provides a place for learning about nature.

The area creates a relation to nature and knowledge about it.

8.5 Knowledge about ecosystem services

The respondents relate to different services when they were asked about what they think the urban nature provide. However, most respondents related to regulating services. Most common was the thought of the green areas as lungs, describing both how the greenery cleans the air and how it provides oxygen (GM42a, GM42b, SF32, SF59, SF70, SM60, TF63 and TF65). GF34 also describes how the greenery could level out the carbon dioxide in the air at a local scale. TM65 describes how the greenery improves the local climate by reducing the wind. However, most respondents do not know how or why the greenery cleans the air.

Supporting services, as being a habitat for species, is another. GM42b, GM66 and SF17 see this as an important function, where they talk about green spaces home for animals and plants.

There is not much association to the provisioning services as food production; only GF34 brings this up. However, other respondents are using this ES since they have described how they are picking berries and mushrooms in the forest, as SF32, TF63 and GM42a.

The best-known and most used ES described by the respondents in this thesis are the cultural services. Most respondents describe how the urban green spaces give calmness, stress reduction, rest and increased health. The health effects come both from the clean air (SF32) and exercise (SF59 and GF80). GF80 further describes that the green space makes people go outside. Stress reduction comes from noise reduction a disruption from the everyday connected life (TM18). GF34 describes how nature gives a chance to make the mind rest.

"There is no one, it is only you, and it is as good as 20 minutes nap in your sofa, for example" (GF34).

SF59 thinks that the trees and the flowers are beautiful and make her feel good. It also provides energy to her. TM65 sees nature as something that provides reflection and thoughts.

Many respondents in TNS and GNS see the urban green spaces as a way to come closer to nature (GM42b, GF80, GM66, TF63 and TF65). In Sörhallsparken, this association was not as obvious.

Analysis (Knowledge about ecosystem services)

No one of the teenage respondents talked about the regulating services. However, both younger and older respondents mentioned supporting services as habitat for species.

Most respondents do not relate to food provisioning to the urban nature; this might be from the fact that there is not much food produced in the urban green spaces today. However, while the parks did not provide any food provisioning, the urban woodlands gave berries and mushrooms. In this way, the provisioning services are present but not thought of as a service provided by the urban nature.

Green spaces as a way to come closer to nature seem to be more connected to urban woodlands than to parks, which might show how trees and less planned green spaces give more associations to nature than lawns. Sörhallsparken has more associations to social meetings, but also for health, exercise and stress release.

To conclude, the respondents know and use several important ES. They are most aware of the cultural services, but also the regulating and supporting. The least thought of is the provisioning services.

9. Discussion

I would argue that this thesis is important because it adds further knowledge to the theory of sustainable development in an urbanized world. By observing the places and listening to the users' own stories, we get a broader view of how green spaces

contribute to social sustainability, as well as a deeper understanding of the users' knowledge of the ES in the area.

My own understanding of green spaces increased during this study. What first seemed to be inaccessible and empty areas appeared not to be. By observing and talking to people, TNS, for example, has become an impressive area with place attachment, calmness, interaction and where environmental learning. Furthermore, values including nature interaction, stress reduction and environmental learning, especially for children, were discovered in GNS. It is valuable for planners to know that green spaces often create values that are not visible at first sight.

9.1 Interaction

During the observations, not much people made contact with me. As Peters, Elands and Bujis (2010) write, most people are not taking contact with other people, without being encouraged. An important method for creating meeting is the triangulation. In this thesis, dogs, children, forest, social visitors, a fire and a pond all seem to be creating triangulation. A question that needs to be addressed is what triangulation effects that comes from the particular green space and what effects is just interaction, independent of the place for interaction. The pond in TNS creates this triangulation. The environment and the pond create a reason to stop and talk. Dogs seem to have the same effect, as several respondents describes. But what role does the green space have? As seen in GNS where most people are just walking by, the same phenomena could happen in the street, it is not exclusive to the particular green space. Though, in Eriksberg, where the possibilities to play with dogs is limited, dog owners comes to Sörhallsparken for this particular reason and the interaction happened because of this. Therefore, the green space and the dogs create a triangulation that increases the interaction.

Even though the frequency of potential meetings are greater in Sörhallsparken, because of the larger amount of people in the grass area, the reason to interact is less than in the urban woodlands. Especially in TNS, it becomes clear that the environment increases the reason to interact, even though the potential meetings are few because of the small amount of visitors. The spontaneous interaction is lower in

the park areas, except from the parents and children in the playground and among dog owners.

GNS is more of a transit place and a place for calmness and interaction with nature. TNS fills the same function, but also contributes to meetings between visitors. Moreover, the collective management of green areas creates stronger social networks in the neighbourhood, as in TNS.

In Sörhallsparken some places increases the existing ties, it is used to meet friends and to play sports. This, along with the playground for parents and their children, increases the social network. However, for the people who are just walking through, the area becomes something else than a social place, a place for recovery and exercise.

9.2 Participation

No green spaces in this study increase the participation per se. There are protest groups in GNS against the development of the area. Everyone I talked to seems to have an opinion about it, which leads to discussion among people in the area, not just in the protest groups. So the threat towards the green space leads to further interaction in the area. In Sörhallsparken the most relevant participation is within sport activities. In TNS, the participation comes from the condominium association, which is the only group who is actively managing their neighbourhood green space.

9.3 Place attachment

Housing types can affect how you interact with your neighbourhood green space. The people living in condominium association could, as seen in Titteridammshöjden, more easily take responsibility to manage the green space and therefore interact with, and improve the quality of, the area. Titteridammshöjdens condominium association and its closeness to TNS provide a perfect context to produce locality.

In GNS, locality is produced through the protest groups, by increasing the interaction between the residents in the area, in relation to this physical place. This creates common values and a standpoint, which becomes clear even though I do not talk to any one particularly involved in the protest group. This also increases the place

attachment. Therefore, it leads to an increased sense of community. Moreover, others are producing their locality by putting up nesting boxes or building tree houses, obstacle courses, allotment gardens or a windshield. Woodlands create more opportunities to produce your context than a planned park. People produces locality if they get the chance, the more wild nature seems to be a better context for this.

In Sörhallsparken, the green space contributes to place attachment and the proudness, because of its uniqueness in the area. The production of locality is different here, more focused on the social interaction within groups than interaction with the natural environment. The area is being used to strengthen the smaller communities, as a condominium association or the friendship of younger adults, which is another form of production of locality.

Most respondents in the longer interviews expressed a feeling of place attachment for their green spaces. It is often connected to special features; in TNS it was the nature and the pond. In GNS the wildness in the green space was inspiring. Sörhallsparken had the mountain, which was standing out in relation to the rest of the neighbourhood. All of these created commitment and place attachment.

Another form of production of locality is the management of ecosystems. In all green spaces, someone has put up nesting boxes as well as bird food, both from the municipality and from the civil society. This example adds to Andersson, Barthel and Ahrné (2007) study, that even in parks, birds are taken care of, both by the municipality, schools and private persons. Moreover, the allotment garden in GNS is producing locality and becomes beneficial for bumblebees. Andersson, Barthel and Ahrné (2007) write that engagement in the local natural environment both is a result of place attachment as well as awareness of sustainability. Appadurai (1995) adds that the engagement in the neighbourhood is production of locality. These actions lead to integration of a SES, which leads to an opportunity to increase social sustainability, awareness of sustainability and ES.

Green spaces provide a special importance for young people, because of their need to be out of sight from parents and other people. For other groups, such as parents with small children, an open area becomes important in order to have an overview of the area. Sörhallsparken gives room for different groups by providing the social needs of each group. This increases place attachment and could lead to social cohesion in form of interaction, safety and place attachment. However, it does not encourage people from different groups and cultures to meet. TNS and Sörhallsparken could both serve as a place for interaction between groups who lives in the area.

Peters, Elands and Buijs (2010) discuss special features in an area as a way to increase the interaction through triangulation. However, these special features seem to have an important role in the creation of place attachment as well. Both the mountain in Sörhallsparkens and the pond in Titteridamm create a relation, which makes people attached to the area.

9.4 Safety and security

The people in this study do not see green spaces as unsafe. However, dark empty places can become obstacles, according to some respondents. Here, interviews with people who do not use their neighbourhood green spaces would have been interesting and they would probably give more knowledge about green spaces and safety.

9.5 Social cohesion

Social interaction appears with different frequencies in the green spaces. The pond and the condominium association in TNS generates including activities. The management of the green space is increasing social interaction and place attachment, which leads to social cohesion and a strengthened social community networks.

The green spaces contribute to both weak and strong ties. The park areas are social places where you meet people you know, which strengthens the strong ties. The urban woodlands are places where you interaction with nature, but also create weak ties because they encourage spontaneous meetings. Therefore, interaction appears in different forms in different type of areas, but both are important and increase the social cohesion in the area.

9.6 Usage of and knowledge of ecosystem services

Green spaces are places for being alone, calmness and contrast to the city, technical impressions and people, an important ES in urban woodlands. However, the usage is much diversified, you can be alone if you want, and if you have the courage to talk to people it can become a place for interaction and meetings between strangers. The same phenomenon is not seen in Sörhallsparken. However, Sörhallsparken is more crowded and more social, both in the grass section and the mountain. The biophysical space matters for what you can get from the particular green space.

All respondents have some knowledge about important ES. The most common service that comes to mind at a direct question is the regulating ES, trees as a green lung. More specific, but less mentioned, ES is capturing carbon dioxide. Other respondents mentioned a supporting ES i.e. green space as the home to animals and birds. The cultural ES; stress reduction, recreation, learning about nature, but also regulating functions as noise barriers and creating shadowing that gets most attention, because this is what people go to the green space to take advantage of. An unspoken but obvious cultural ES that many respondents are using is the nature as a sacred place, which creates a sense of belonging in the local area. Another important cultural ecosystem service is the non-consumptive interaction; this Chiesura (2004) and Burgess, Harrison and Limb (1988) identifies in their research. Several respondents use the green spaces in this way, and use the cost free area as a disruption from the city life, an important function, especially for some groups. There might not be a coincidence that the two teenagers in the interview group pointed this out.

There are not many thoughts about the provisioning ES, probably since they are the least present in urban areas. However, some people are using the green spaces for picking berries and mushrooms. To take out the children to pick blueberries, mushrooms or raspberries is also a way to use an ecosystem service to increase the knowledge about nature.

Malone (2004) concludes that green spaces are important to learn about nature and to create a relationship to nature. These green spaces become important in order to teach

about ecosystems, nature and sustainability, especially for parents and grandparents. Further, this could lead to an increased place attachment that creates a ground for local knowledge and ES. This function is visible in this study; both schools and parents use green spaces to teach about nature. What the children learn seems to be connected to how interested the parents are, but the green spaces contribute to the opportunity to tell the children about nature.

The interaction with nature was not enormous in the green spaces; the most common activity in the green spaces was walking. However, the condominium association in Titteridammshöjden leads to increased interaction and management of ecosystems. This has increased the awareness of the local nature and the feeling of responsibility. This form of local management and interaction with the green space provides prerequisites for an increased local ecological knowledge (LEK). The management has increased the residents' knowledge about the area. It creates possibilities to share knowledge between generations. However, the evidence of a strong LEK is not present in the area. This could be that the type of residential management, is not promoting LEK or because of the young age of the condominium association. All the features needed are embedded in the activity. Important to notice is that this is a way to create a collective stewardship in urban green spaces, which Andersson et al. (2014) defines as most important to manage urban ES.

Many ES are used and well known to the respondents. Some of these lead to increased place attachment and learning about the nature and the local area as well as they can increase the social interaction. However, these synergy effects could be further developed and used in order to increase LEK and sustainability learning at all the researched sites.

9.7 Do the biophysical features matter?

The most obvious difference between different forms of green spaces is that the dense forest decreases the amount of visitors, while open park areas can increase them. However, location also matters. The dense, wilder nature creates closeness to the nature and a place to be alone, decrease stress and a contrast to the city. Moreover, the urban forests, more than parks, provide an area for exploring. This seems especially

important to children and pre-adolescents, but also to adults. Such exploring seems to contribute to increasing knowledge about nature and place attachment. The urban forest also contains provisioning ES, mainly berries and mushrooms, which several respondents are picking in the autumn.

Parks are places for social meetings. Open spaces makes it possible to play sports and for parents or dog owners to meet. There is room for picnicking and barbequing. Though, picnics and barbeques are held in the forests as well.

Place attachment seems to be related to the uniqueness and usefulness of an area, which is seen in both parks and urban woodlands. However, the possibility to produce locality seems easier in the urban woodlands, because they are less planned and seem more allowing.

As Peters, Elands and Buijs (2010) puts forward as well as this study shows, to create different types of urban green spaces in order to create access for different groups is significant. There are some barriers left, to make different groups meet and interact. Both open park areas and dense woodlands are needed in the city, for social meetings and interaction with nature in order to increase a sustainable development.

As seen in figure 11 and 12, there are different opportunities with parks and woodlands, both equally important to access in the urban areas. Therefore, the variety of green spaces is important to create rooms in the urban area, which can sustain and develop the urban sustainability.

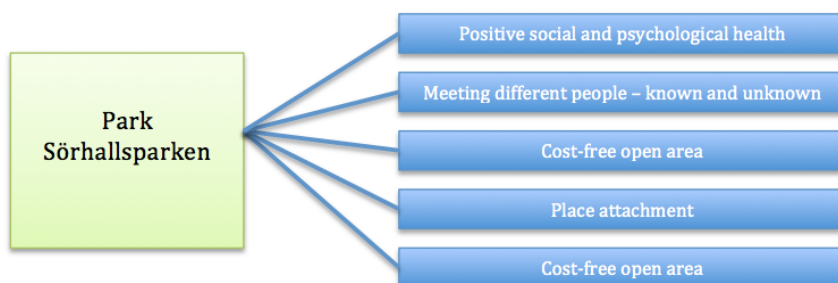


Figure 11 – positive outcomes of parks according to this study

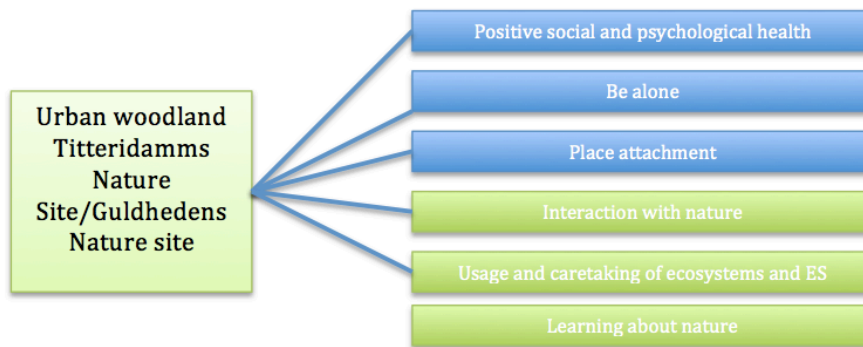


Figure 12 – positive outcomes of urban woodlands according to this study

This study has researched the social aspects. However, in order to fully understand the holistic value of green spaces, habitat supporting actions and other nursing activities, providing LEK must be further applied and researched, as must the research on SES. With that, and an increased focus on the green network within a city, environmental and social sustainability could increase in the long run.

10. Conclusion

The aim of this study was to understand how the relationship between social and ecological sustainability could be understood through urban green spaces and how different types of green spaces provides different opportunities. To answer this, three research questions was asked

How are people using their neighbourhood green spaces?

The urban nature is important for the people who are using them and increases place attachment and social interaction. Visitors of green spaces interact with the places in different ways, for social meetings, being alone, interaction with and observing nature, picking mushrooms and berries, exercising and to get away from the eyes of others, but also the city.

Park areas creates opportunities to interact with people you know, while urban woodlands creates more opportunities to talk to strangers, and to be alone and calm down. Moreover, people goes to urban woodlands to be alone and interact with nature

and learn about nature, while going to parks to be social. Therefore, the place matters, the shape of the green space creates different opportunities, and a variety between green spaces as well as within a green space is needed to make room for different groups and purposes.

In some areas there is a collective management of green spaces, which can be a way to visit the green spaces and meet neighbours.

How are urban green spaces contributing to the knowledge and usage of ecosystem services?

There is more interaction with nature in urban woodlands than in parks. Furthermore, the places provide opportunity to learn about nature. Management responsibilities makes it possible to produce locality as well as place attachment and can increase social networks and awareness of sustainability.

Green space visitors know most about regulating ES, but the cultural ES where most frequently used. There is no association with provisioning ES, as food production in urban green spaces, even though many people are using these as well.

How can the usage of the green spaces in Gothenburg be understood from a sustainability perspective?

Green spaces create both place attachment and the social interaction. Special features, as a pond, increases the social interaction as well as place attachment even more, which is confirmed in the literature. Therefore, green spaces can increase social cohesion in a neighbourhood. However, most neighbourhood green spaces do not attract people from the whole town, which decreases the possibility of interaction and social cohesion at a city level.

Different green spaces provide different opportunities; urban woodlands give more opportunities for interacting with nature as well as producing locality by engaging in the green space. Parks increases strong social ties while urban woodlands contribute to spontaneous meeting, which increase the social network as well. Therefore, different types of green spaces are needed to provide different opportunities and fulfil different needs.

Management of green spaces provides opportunity to increase social ties, place attachment, learning about nature and knowledge of ES.

The thesis show how the social-ecological system thinking can develop the view on the potential of green spaces for sustainable development. The social functions and the ecological processes are interconnected, through the potential of learning about ecosystems and ES. Also, different places change creates different potential for interaction with other people and with nature and it is important to understand the different potential of different types of green spaces and management of these.

Over all, green spaces provide opportunities for increased social sustainability as well as increased learning about ES and environmental sustainability. However, based on this study, the potential is not fully used, especially a greater management of green spaces, provided by the residents in the area, could increase both social sustainability and local knowledge.

10.3 Further research

This study shows a great potential in using the green spaces as tools for a sustainable development. However, this potential is not well used today. Studies regarding how to take advantage of this potential, as how to increase the local management in neighbourhood green spaces, could have a great impact for sustainable development that can be applied by planners.

What is not fully researched in this study is how green spaces and their functions change during the year in a northern country as Sweden. A vast part of the year, green spaces are grey, brown, white and not the least, dark most of the day. How could the seasonal differences change the perception and usage of green spaces?

11. Reference

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ⁱ "Det är de här inledande, tre-fyra fraserna om hunden som bryter det här, då kan man snacka om vad som helst plötsligt, ja

- Så du har börjat prata med folk du egentligen inte känner där nere?

- Så du har börjat prata med folk du egentligen inte känner där nere?

- Ja, absolut." (GM42a).

ⁱⁱ "(...) jag märkte i vintras faktiskt, det var första gången jag såg någon komma gående ut ur

ⁱⁱ "(...) jag märkte i vintras faktiskt, det var första gången jag såg någon komma gående ut ur skogen, där det inte var någon stig alltså. För jag har aldrig tänkt på det innan, eller har sett och aldrig själv gått på något annat än vägarna eller stigarna. Men där kom en gubbe gående. Och jag tänkte faktiskt, det var snö då, så jag tänkte att jag skulle kolla fotspåren för att se om det var vanligt att folk knallar, för han gick därifrån och kom så jag tänkte att det kanske finns någon genväg som de använder." (GM42b)

ⁱⁱⁱ "- Jag tycker att det är väldigt viktigt, så jag hoppas att här inte blir bebyggt. För det har varit tal om det för många år sedan, och då gick de här och visade hur det skulle bygga." (GF80)

^{iv} "(...) jag har ju känslomässiga bindningar då, när min son föddes då för 34 år sedan, då bodde jag däröver, i det huset, då föddes han nere på Sahlgrenska, och då sprang jag ju emellan här va, så då plockade jag, det var i april, så då plockade jag vitsippor och hade med mig då till frugan och den här lille (...) då, så och de är ju ett starkt minne för mig då" (GM66)

^v " – Ja, alltså det är viktigt för all att liksom använda sin kropp, och att lära sig, ja för barn är det balans och muskulatur och för att se vad som finns och vad som går att använda i naturen, använda fantasin. Det låter lite gammal-tradigt men, liksom, kottdjur och pinnar och, det är oslagbart, liksom. Man märker ju också att när man tar ner barn dit så, de leker ju på ett helt annat sätt, ja det blir en annan typ av lek. Men för vuxna så blir det också, tycker jag, märker jag av när man är i parken (...) att det blir ju en mer betraktande konversation att prata då, för det finns så mycket att titta på, fast det inte händer något egentligen. Men det blir ju på en sådan nivå att man, ja, det finns alltid något att kolla på liksom, man blir liksom inte matad med något. Det är som ge och ta på något sätt." (GM42a)

^{vi} "- (...) lite längre ner på gatan så finns det också en lite koloni av björnlokor innanför staket, det är ju då på Microbiologen, innanför staketet där, dem kan man ju peka på och säga att de där är ju kanske inte så bra att ta på då, till exempel". (GM42a)

^{vii} "Det blir ett sätt att mötas ändå, jag utgår mycket från min egen situation nu, i det att jag är föräldraledig och så. Det kan bli väldigt ensamt, särskilt om det är det första barnet så. Man behöver träffa människor helt enkelt, det är jätteviktigt. På en lekplats och när man har barn med sig så är det oerhört lätt att börja prata med människor. Så det är lika mycket för min skull som för deras skull" (SF32).

^{viii} "Vi har haft en poängpromenad där uppe faktiskt, vår bostadsrättsförening där jag bor har haft någon sådan här avslutning, och då har vi samlats där uppe och haft lite så, käkat lite jordgubbar eller tagit ett glas vin eller, du vet så där, avslutningsfest där uppe, så det är ju också trevligt, väldigt viktig de, det är det faktiskt" (SF61)

^{ix} "Jag föredrar alltid att kolla på naturen framför att kolla på betongväggar, och sten kanske inte är så mysigt att gå på. Här kanske man tar av sig skorna istället, det känns mysigare." (SF17)

^x "Det får oss att tänka mer på miljön och man tar med sig sitt skräp hem och man värnar om det gröna för att man känner att det är viktigt. Att människor lär sig vara i grönskan, i naturen. Det är ju viktigt" (SF61)

^{xi} "så träffar man ju folk man känner när man är på väg att gå till jobbet eller kommer tillbaka, så att man möts och då stannar man här ett tag och pratar om dammen. Om det är lågt vattenstånd eller vad det nu är, då har änderna ingenstans att vara (...) Ofta kommer det upp då, som en inledning till konversationen. Dammen som samtalsämne då. Så det händer att man träffas då. Och om man inte har för bråttom så stannar man och byter några ord. Och det är väl lättare att göra just här där det är en damm istället för vid någon större gångväg så där. Då kanske man bara hejar till och går vidare" (TM65)

^{xii} "Ja, det är väl också en skillnad utifrån när man går på en gata eller om man träffas i skogen, så hejar man ju oftast" (TF26)

^{xiii} "Många göteborgare behöver veta vad det finns för tillgångar i, alltså folk som bor i innerstan, vad det finns för tillgångar faktiskt, ute i förorterna, för det är väldigt många

gångar som man får höra att; oj, men liksom vad fint det är här! Folk som inte har varit i Angered, att de har en väldigt negativ bild. " (TF26)

^{xiv} "(...) Det jag gillar mest med det här är att dammen försvinner och sen kommer tillbaka, jag tycker att det är jättecoolt" (TM18)

^{xv} "Så fanns det en sägen att pigorna från Gunnareds gård gick upp hit för att spegla sig, titteridamm, för att den var så spegelblank" (TM65)

^{xvi} "Så är det stora stenblock nästan högst upp, det kallade vår äldsta dotter för Valen, och där brukade vi fika när barnen var små, "åka till Valen". Så det är ett rätt bra friluftsområde för små barn, de lär sig mycket om naturen, att ha det så nära inpå sig" (TF63)