Lawn as Ecological and Cultural Phenomenon; Understanding of Social, Cultural and Regulatory Motives for Establishment and Management of Lawns in Uppsala

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Lawn as Ecological and Cultural Phenomenon; Understanding of Social, Cultural and Regulatory Motives for Establishment and Management of Lawns in Uppsala

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Abstract: Lawn is a homogenized element of modern urban green space. Due to historical and cultural characteristics of Swedish urban planning, lawns are the main common typology in Uppsala (77.3%). Despite the strong attachment of Uppsala people to green carpets, the multibillion lawn industry is highly costly in terms of maintenance and management. It is also a source of pollution due to excessive mowing regime. In this research, social, cultural and regulatory motives behind establishment and management of Uppsala lawns among different stakeholders were researched and discussed through a transdisciplinary approach. In the light of three pillars of sustainability, I had a closer look at management and establishment of lawns in Uppsala municipality and Uppsala’s housing corporation. It was found out that social and recreational aspects of lawns are very much appreciated among all respondents. However, economical and environmental aspects of lawns are barely discussed among planners, managers and politicians and they are under the veil of social values. This research also found out that there is a strong attachment of general public to lawns. It can be explained by lacking of ecological knowledge and environmental understanding about the real role of lawns in urban biodiversity. One of the goals of my research was to find sustainable alternative solutions to the conventional lawns that can be implemented on city and neighbourhood scale as well as to educate public and professionals about importance of lawn’s biodiversity.

Keywords: Sustainable development, Lawn, Social and cultural phenomenon, Establishment and management of lawns, Alternative lawns, Urban biodiversity

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**Summary:** Globalization has caused homogenization of green areas around the globe. Today we are witnessing similarity in urban green areas everywhere in the world irrespective to the climate conditions or geographical location. As a result of similar plant materials of green infrastructure, there are major risks of diminishing urban biodiversity and degrading different ecosystem services. Lawns are the most influential element of urban green infrastructure. They are valuable for many reasons for example as a meeting and socializing place, relaxing and recreation for people and a place for city people to have a daily contact with nature among others. Lawns are also contributing to cooling weather; water infiltrations and carbon sequestration, however intensive management and maintenance of conventional lawns such as using lawn mowers, fertilizers and herbicides, have made them source of pollutions. This research has investigated the lawns in Uppsala from the historical, social and cultural perspective in order to explain the motives for decisions about establishment and management of lawns among different stakeholders. This was done by conducting interviews with the stakeholders from the professional level. As a result this research found that although the professional level are very engaged to move towards sustainability trends but their environmental and sustainability knowledge is shallow or not in the priority as the pressure from housing demand in Uppsala turned all the attention towards house building projects. The two sub-case studies in this research were chosen from two multifamily housing programs in Sweden (i.e. “People’s house” and “Million Programme”) in Tuna backar and Gottsunda. People were asked and observed to investigate their perception of the lawns and how the lawns are utilized by them. During the survey interviews, people talked about their strong attachment to traditional lawns. I observed lack of knowledge about biodiversity and alternative lawns among professionals and public however there are potentials in changing people’s attitude and perception by raising awareness and demonstrating sustainable solutions to unsustainable lawns.

**Keywords:** Sustainable development, Lawn, Social and cultural phenomenon, Establishment and management of lawns, Alternative lawns, Urban biodiversity

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1 Introduction

Urban green infrastructures are influenced by globalization trends and characterized by homogenization, loss of identity of place and expensive management and maintenance (Ignatieva & Ahrné, 2013). The flora and fauna of cities in different parts of the world have very similar features even in different geographical and climatic conditions (McKinney, 2006). In most of the Western world, including Sweden, the urban landscapes have applied the same landscape architectural approaches: French formal, English Picturesque, Victorian Gardensque and Modernism (Ignatieva, 2010). One of the most influential elements in urban green areas is lawn, which covers a significant part of all green areas in cities (up to 70%) and can be found in public parks, backyards, traffic environments, golf courses.

Because of homogenised and similar patterns of green infrastructures and specifically lawns all over the globe, people perceive lawns as “must be” element of open spaces in urban landscapes. This perception is worldwide, even with people from hot and dry climate such as Iran or United Arab Emirates, (Figure 1) where water scarcity is obvious. Lawn was not known in traditional Persian gardens or Arabic courtyard’s design. I grow up in Iran and been living in Dubai for several years. There I saw lawns as a decorative and even “sacred” element in the gardens and parks. Everyone just appreciated its existence and was amazed of the expensive irrigation system that keeps this emerald grassland alive in desert environment. With time, after learning about sustainability issues and environmental problems, I have however changed my mind of seeing lawns as a “sacred paradise” and now can see in it costly green carpet. The question for me was: for how long more the strong and powerful image of lawn in urban landscapes can be sustained?

Figure 1. Urban lawns in Tehran, Iran (left) and Dubai, U.A.E (right) Source: Internet.

This research is a part of the ongoing LAWN project at SLU (Swedish University of Agricultural Science). The thesis is studying lawns through the ecological, social, cultural and historical perspectives. It is examining the motives behind the decisions about establishment and management of lawns among different stakeholders in Uppsala, searching the historical roots and public’s perceptions of lawns and also investigating the sustainability of the current management of Uppsala lawns. This research is based on a transdisciplinary framework to create a forum for a dialogue between the academic and non-academic participants such as politicians and ordinary people. The case study for this research is Uppsala and the two sub-case studies on neighbourhood level are: Tuna backar and Gottsunda. I studied these two multi-story residential housing areas with significant amount of lawns. These areas are under jurisdiction of two important housing program types in Sweden, (i.e. “People’s house” and “Million Programme”). Researching helped to provide a holistic view of how people perceive and use lawns in these two neighbourhoods. The common characteristic of Tuna backar and Gottsunda is their “date of birth” during the post war functionalist planning when large areas were allocated to green areas. These areas were dominated by lawns. To our knowledge, there are no previous Swedish studies on Swedish lawns (Ignatieva et al., 2013)
1.1 The LAWN Research

The LAWN project is funded by Swedish Research Council FORMAS and runs from 2013 until 2016. The project is led by the Swedish University of Agricultural Sciences (in Uppsala).

A distinctive feature of LAWN project is an interdisciplinary collaboration between ecologists, entomologists, sociologists, soil scientists, historians and landscape architects who take part in it with the support of practitioners responsible for the planning, establishing and maintenance of lawns (Ignatieva, 2014). This interdisciplinary collaboration is aiming to study lawns from different perspectives (first of all social and ecological) in order to understand their roles in sustainable urban planning, design and management (Ignatieva et al., 2013).

My role in the LAWN project is to work on the “social and cultural and historical package” as a part of the sociology team. I was asked to develop the surveys and interview questionnaires as well as conducting field work interviews, surveys and observational studies. I have participated in many working meetings with my team members as well as the LAWN project meetings.
2 Background

In nowadays, lawns are the most visible elements in all types of urban green infrastructure (Ignatieva & Ahrné, 2013). The lawn prototypes can be probably referred to the European floodplain grasslands vegetation or to secondary meadows after clearing and grazing. In Medieval time lawn was used as decorative element for the first time. It was mainly cut turf from meadows which was transported to castle gardens. Lawns were used in the formal parterres of French gardens. It was a very important element of English landscape parks of the 18th century and the Victorian Gardensque parks from the 19th century, where the decorative grass was used for recreational purposes and became a symbol of social prestige. The decorative grass was used for recreation purposes rather than productive e.g. for grazing. During the 20th century the desire for lawns created a commercial multibillion industry to produce seeds, pesticides, fertilizers, irrigation technology and lawnmowers (Ignatieva & Ahrné, 2013). There are positive aspects of lawns which are the social and recreational values, however intensive management of lawns such as frequently mowing, using herbicides and pesticide have raised the environmental awareness on possible impacts of lawns on the urban environment. All previous research on urban biotopes has shown that lawns are very similar in plant species composition and, important contributors to the homogenisation of urban landscapes and loss of urban biodiversity (Ignatieva & Stewart, 2009; Ignatieva, 2012). United States is consider as one of the biggest “lawn’s lover” with its 60 million kilograms of pesticides are administered to lawns each year and 1.5 trillion litres of municipal water is irrigated on the grass each summer day (Wood, 2006).

Today Lawns can cover up to 70% of open public spaces in urban environment (Stewart et al., 2009). In Sweden lawns also cover large areas. There is approximately 80 000 ha of maintained lawns in Swedish Cities. About 5.8 km² of lawns (77.3% of total area that Uppsala municipality maintains) can be found in Uppsala, in public courtyards, parks, golf courses, sport fields, cemeteries, private gardens and traffic environment (Ignatieva & Ahrné, 2013). Like everywhere in the world, lawns in Sweden are widely advertised by urban planners, landscape architectures, developers and mass media as a very useful consuming product (Hellner & Vilkénas, 2014). Establishment, management and perception of lawns in Sweden is very much connected to history of urban development in Sweden and the social structure of Swedish society (Ignatieva, 2014).

Most grasses which today are used for lawns are hybrids originating from the same few lawn’s nurseries. Lawn is a specialised urban habitat which has no equivalents within the native environment in Sweden. However, there is no comprehensive information about Swedish lawns, their management or the character of its environmental impact (Ignatieva & Ahrné, 2013). Lawns also provide several ecosystem services. Those are valuable and beneficial for human society. Ecosystem services are usually divided into provisioning, regulating, supporting, and cultural services (MEA, 2003). Lawns can potentially contribute to a number of ecosystem services related to recreation and aesthetical values, social relations, biodiversity and education, pollination of garden fruits and vegetables, water and nutrient management and carbon sequestration.

There are only a few studies of different aspects of lawn and most of them have been done in the US, Germany and New Zealand. In New Zealand lawns can contribute to acute environmental problem with invasive species. We can identify two main fields of lawn research:
1. Historical overview including the search for “alternative lawns” (Bormann et al., 2001; Ignatieva & Stewart, 2009)
2. Lawns as urban biotopes (e.g. plant species diversity) from UK, Germany and New Zealand (Müller, 1990; Thompson et al., 2004; Stewart et al., 2009).

My investigation is answering a number of questions such as motives for decisions about establishment and management of the lawns as well as the historical roots, perceptions, understanding and usage of lawns among people in Uppsala. It will also result in concrete recommendations for stakeholders about how to establish and manage sustainable lawns for Uppsala.
2.1 Lawn Definition

Lawn is an area of land planted with mixture of grass which is cut and maintained frequently (Hellner & Vilkénas, 2014, p.15). During the course of this research I sometimes refer to the lawn as “conventional lawn” or “traditional lawn”.

Lawns in Uppsala municipality divided into four categories according to frequency of cuttings and the level of maintenance: “ornamental lawn” prydnadsgräsmatta, “functional lawn” bruksgräsmatta, “high grassed area” högvuxen gräsytta and meadow äng. (Hellner & Vilkénas, 2014, p.23). According to green space manager of Uppsala (2014), More than 90% of Uppsala lawns belong to the “functional lawn” bruksgräsmatta category and is frequently cut by lawn mower. The lawn height is to keep up to the 8-10 cm. (Figure.2)

*Figure.2. Functional lawn (bruksgräsmatta), Source: Gröna Fakta4/2009.*
2.2 Alternative Lawns Definition

Different type of urban vegetation can replace the conventional low cut lawns are referred as alternative lawns in this thesis. Alternative lawns contain variety of herbaceous species and have high biodiversity values (Hellner & Vilkénas, 2014, p.15). The LAWN project came up with ten different alternatives to conventional lawns in the demonstration trial sites located at Swedish University of Agriculture (SLU) in Uppsala. It is open to public (Ignatieva et al, 2014). This thesis refers to three of these alternatives which are: grass-free lawns, meadows with perennials and meadows with annuals (Figure 3 Design by Hellner & Vilkénas, 2014).

Figure 3. Grass free lawn, meadow with perennials and meadow with annuals. Photos: Hellner & Vilkénas, 2014.
2.3 Aim & Research Question

The main goal of this research is to obtain transdisciplinary qualitative and quantitative data to examine the motives for decisions about establishment and management of lawns among different stakeholders in Uppsala and to study historical roots, perceptions, norms and use values of lawns among public in Uppsala. The objective is to examine the sustainability of Uppsala lawns and establish recommendations for the future design and management of this widespread landscape element.

This research aims to answer the following research questions:

- What are the social, cultural and regulatory motives for decisions about establishment and management of lawns among different stakeholders in Uppsala?
- How do people in Uppsala perceive, understand and use lawns in different ways?
- How sustainable is the current management practices of lawns in Uppsala, and what can be done from the social point of view to make Uppsala lawns more sustainable?
3 Methodology

To address questions about perspectives and perceptions of green areas within the city it is necessary to use several complementary methods (Gehl, 2010). The five main methods used within this research will be: 1) Literature review, 2) Interviews with city gardeners, public planners, decision makers, landscape architects and site managers to obtain information concerning their vision, planning, management and perception of lawns, 3) Surveys: short interviews with local people to get an idea of how lawns are perceived and utilized. 4) Observational studies of how frequently and for which activities the selected lawns are utilized. 5) Case study methodology to examine the underlying theory with the “real world” examples.

3.1 Literature Review

The literature was gathered from different sources. Some has been found in published books on interrelated fields such as urban biodiversity, sustainable communities, urban planning and urban sociology. Some data was drawn from scientific articles, journals, thesis projects and websites such as Uppsala municipality’s website which was accessed in order to find governmental documents. Other websites that were used to find articles and thesis were: Google Scholars, Google books and Epsilon. I also included some data in my analysis which were given to me in form of website or hard copies by some of the interviewees. These official documents are: “The Green Fact; Maintenance manual for courtyards” (*Gröna Fakta; Skötselmanual för bostadsgårdar*), “Park plans for Uppsala city” (*Parkplan för Uppsala Stad*), “Uppsala parks; Guidelines” (*Uppsalas Parker, Riktlinjer*), “Uppsala in twenty years; A summary of the 2010 comprehensive plan” (*Uppsala om tjugo år; En sammanfattning of översiktplan 2010*).

The theoretical basis for this research includes theories and conceptual frameworks on transdisciplinary approach, and sustainable cities. According to Cillers (2010, p.83), conceptual frameworks provide principles for “integration of social and biogeophysical” issues in urban ecological research.

3.1.1 Transdisciplinary Approach

The present research is transdisciplinary collaboration, including different stakeholders, to study lawns in Uppsala from the historical, social and cultural perspectives. According to Fry *et.al* (2007, p.248), transdisciplinarity projects combine both academia and non-academia such as public and decision makers, to reach one goal. Cillers (2010) explained that strength of interdisciplinary approach is that it provides open discussion between different disciplines. He then argued about the importance of non-academic participants such as policy makers and public in an integrated research which is embedded in transdisciplinary approach. These relations are shown in (Fig.4).
Leavy (2011) pointed out advantages of transdisciplinary approach. She explains how transdisciplinary approach has set the researchers free from their own disciplines which had an effect on expansion of social researches. Also since additional tools and resources are allowed to be used in interdisciplinary researches, research questions are asked from different perspectives. Further she explains that in the light of transdisciplinary research methods, new sets of research processes as well as the new scientific tools for evaluation of research have been appeared.

The transdisciplinarity approach to this research is integrating different disciplines such as sociology, landscape architects and ecology with non academics such as politicians, managers and public to answer the research questions. With help of interdisciplinary framework as well as participatory approach, this research can achieve a multi-dimensional understanding of the lawn as ecological and cultural phenomenon.

According to Fry et al. (2007, p.250), participatory studies and especially the use of local knowledge may not necessarily consider as research but is very important to empower the application of the scientific achievements. This thesis tried to make a bridge between academic participants such as ecologist, landscape architects and sociologists and non academic participants such as politicians, managers, city planners and public to gain a better picture when investigating the social and cultural perceptions and management practices of lawns in Uppsala.

3.1.2 Sustainable Cities

The notion of sustainability in cities has been a part of theoretical approach for this research. Later on in the discussion part I will analyse the three pillars of sustainability in regards to management and maintenance of lawns and how the concept of sustainability could be considered with regards to the environmental as well as the social and economical sphere.

Sustainable development in urban planning is a new identification of how environmental and social aspects of development have to be integrated with economic development (UN Habitat agenda, 2009, p.113).

The triple bottom line (TBL) or three pillars of sustainability (Figure 5) was first introduced by Elkington (1998) in order to provide a framework to relate social, environmental and economical issues together and achieve sustainable development.
The concept of sustainable development was extended to Urban planning in 1996 by United Nations Centre for Human Settlements (UNCHS) by stating that “Settlement planning is central to ensuring that urban development and management meets sustainable development goals” (UN Habitat agenda, 2009).

Gehl (2010, p.105) believed that nowadays planning sustainable cities have become a popular trend. He explained that the issue of climate change as a result of CO2 emissions, pollutions and fossil fuels, put an enormous demand on increasing sustainability in the cities around the world.

According to UN habitat agenda (2009, p.113), sustainable cities should be “environmentally safe, socially inclusive and economically productive”. In order to achieve these goals a very careful balancing of environmental management against built environment is required. To apply sustainable development in urban planning, new ways should be found to address both natural and built urban environmental issues as well as the cultural and social aspects of urban communities (UN Habitat agenda, 2009).

Berg (2010, p.30) explains PEBOSCA framework in his book *Timeless Cityland*, emphasising on seven “equally important and mutually linked measurable or assessable resource categories” constitute the main framework for sustainable community development. These seven resource categories are: physical, economic, biological, organisational, social, cultural and aesthetic resources. In the light of PEBOSCA framework it is possible to formulate sustainability strategies for cities and communities.

Gehl (2010, p.109) points out that the plans for social sustainability are an essential principle for creating a lively and sustainable city. Social sustainability and its role in creating sustainable cities is a very broad concept. Part of that idea is related to this research and it is about having access to common open spaces for different group of people. Because lawns in Uppsala are dominant element in housing sites and public parks (Ignatieva, 2014), they give opportunity to many people living in the area to access and use them.

There are many benefits to the green areas. Florgård (2005) classified them and explained that green infrastructure is aesthetically, socially, economically, biologically and functionally very important in modern urban areas. The social aspect of green areas is recreation and leisure activities. According to him, green space has a very important role for people with low budget who can not afford travelling out of the cities to enjoy nature within city. Economically, green areas would contribute to people’s feeling safe at home in their neighbourhood and give them sense of space and biologically it represents diversity. However according to Roseland et.al (2005, p.44), just creating more “green”, does not necessarily lead to a more sustainable environment. He argues that the conventional green areas can be very unsustainable in their design. He explained, despite the aesthetical or recreational values, they have high maintenance costs and demand high amounts of water, fertilizer, herbicides, and contribute very little to biodiversity and food growing. In this research I tried to have a closer look to sustainability issues of current management of lawns since one of the main sustainability factors that Grant (2006, p.35) explained for a good community is the maintenance or improvements of existing infrastructure. According to him the other factors are environmental impact assessment on the landscape and residents’ life quality.

One of the main issues that questions sustainability of lawns is that it is characterized by homogenization and expensive management and maintenance (Ignatieva & Ahrné, 2013).
Bowring et al (2009) argues that “globalization process in landscape architecture can lead to homogenization and the creation of “placeless” design” Ignatieva (2010, p.118), supported this argument as well and pointed out that globalization in nowadays is associated with westernization and its “routine modernism” of particular landscape architecture styles, standardized plant (e.g. lawns) and construction materials. That would lead to loss of urban biodiversity and therefore creating unsustainable urban landscapes.

In order to find more sustainable solutions to the current green areas and specifically lawns we should seek alternatives that are functional. Roseland (2005, p.48) pointed out some benefits of functional green space in a sustainable city: “increasing wildlife habitat, increasing community space and aesthetics, creating more liveable cities and connecting with nature and also saving money” amongst others. Sustainable urban development must integrate both green areas and human built areas and improve “the human environment while reducing the impact of natural resource use and improving the natural environment of the city” (UN Habitat agenda, 2009, p.115).

3.2 Interviews

In order to obtain information on establishing and managing of lawns and the policies for planning the green areas in Uppsala, I conducted seven in-depth interviews and one email interview with different stakeholders such as politicians, city planner, city gardeners and managers in Uppsala.

This method helped me to gain valuable details of managing, planning, visions and policies that have a profound effect on how the lawn is perceived, planned and managed by professionals.

The potential interviewees were recommended by the LAWN project team and through internet search. Once the potential participants identified, contact was established with participants via email or phone calls and a copy of information sheet were sent to them via email. Out of twenty individuals who were contacted, eight people agreed to be interviewed. Once the potential interviewees agreed to be interviewed, meeting times and locations were selected. Interviews for this research took place from March until June 2014.

In order to achieve best results I had five sets of questions (Appendix I, II, III, IV and V) which were designed and discussed with team members of the research group. Each set were designated to a specific person (e.g. one set of questions were designated to the former city gardener of Uppsala municipality) or to a specific group (e.g. one set of questions designated to politicians) and also some points and issues that I wanted to rise during the course of interviews. However I tried to avoid structuring the conversation and interrupting the participant too much.

According to Bernard (2006, p.251), the idea in structured interviewing is “to control the input that triggers people’s responses so that their output can be reliably compared”.

The five sets of questions were designed for: 1) Local politicians 2) City gardeners 3) Local park managers and Uppsala municipality 4) Park planner and project leader of “Park plan for Uppsala city” (Park Plan för Uppsala Stad) 5) Former city gardener of Uppsala and current head of landscape architect department at SLU.

All of the interviews (except the one which was done via email and one conducted in a private room at the main library of SLU) had taken place in the office of the interviewee to allow the interviewee feel comfortable and express their visions and ideas and tell their own narrative through a relaxed and open dialogue. It was important to keep in mind that “one can standardize the question but not the respondent’s interpretation of the question.” (Burawoy, 1998, p.12 ). Interviews (except one interview that was conducted via email) were recorded on the voice recording device to make sure that I could give my attention to the interviewees. Permission to use the recording device was taken prior to starting of the interview.

The questions were related to respondents’ understanding and their definition of lawn and its role (importance and purposes) in modern green area/ their view about the current situation of lawns in Uppsala/ their visions and plans for future of lawns and green space in Uppsala as well as some questions about policies, managing green space and lawns, budget and biodiversity among other questions.

I would like to clarify an issue about the language spoken during the course of interviews. The first interview conducted in Swedish but because I was more confident in English, I realised that although respondent felt very confident in his own language and provided very useful data, but I could not interact with him as I would do in English. Luckily the respondent is one the main stakeholders of LAWN project and he is very much engaged with the research project and the topics discussed in related to lawns. The rest of the interviews were held in English with help of my Swedish knowledge. This could have been a limiting factor for the respondents to express themselves in English but was beneficial as they were replying with straightforward answers.

The recorded conversations were transcribed and both recordings and transcripts were saved safely.
3.3 Surveys

I and one of the researchers from the LAWN project conducted a series of survey interviews with the local residents and visitors. We also asked people who work in the two multifamily housing districts in Uppsala (Gottsunda and Tuna backar), enquiring their understanding and perceptions about lawns and alternative lawns (e.g. meadows) and how lawns are utilized by them. The survey questionnaires were written in English (Appendix VII), Swedish (Appendix VIII) and Persian and conducted on 50 people from different ranges of age, gender, educational and occupation and also ethnic backgrounds. It was 30 people questioned in Gottsunda and 20 people in Tuna backar. The survey was followed by casual chats aiming to find out about the respondent’s everyday life and outdoor activities in connection with the lawns and green spaces.

The survey interviews were held in three languages but mainly in Swedish as we figured that this language is comfortable for the most people (especially in Tuna backar).

We approached the potential respondents by introducing ourselves and the LAWN project and then started filling up the surveys by asking both open-ended and the fixed-choice questions. We included some pictures of alternatives lawns (grass-free lawns, meadows with perennials and meadows with annuals) and asked if they could be an alternative to conventional lawns.

Most of the survey interviews took place on the footpaths of the green areas or on the paths between the buildings and the inner gardens or close to play grounds in both Gottsunda and Tuna backar. A few survey interviews took place inside the library, church or meeting places due to bad weather condition. Survey interviews were held from the last week of April until the first week of June 2014.

3.4 Observational Studies

We did some observational studies in both Gottsunda and Tuna backar to complement our survey interviews. This was done in two weekdays (one day for each site). We chose two locations in each site and did two observational studies in each location in the morning and the afternoon. We chose one location in a more private area (e.g. inner garden of the multifamily houses) and one location in a bigger public area (e.g. Gottsundagipen). The total 8 observational studies in both Gottsunda and Tuna backar were done during the first half of June 2014. At this time Swedish summer has already started and we could have the most possibilities of observing how people use the lawns in the summer time. We experienced different types of the weather (sunny, cloudy, windy and rainy) during our observations. We designed an observation guide (Appendix VI) and set 30 minutes of observations for each occasion. The observations were completed with detailed notes about an area, quality of a greenery and a lawn, diversity of green plantations within an area and how people use this area and in particular lawns. This study was followed by photographing each area.

We designed our observational guide according to Gehl’s research. Gehl (2001, pp.11-15) explained that there are three types of outdoor activities: necessary activity, optional activity and social activity. We chose examples of necessary activities (e.g. walking, cycling etc), optional activities (e.g. sitting, resting, standing etc) and social activities (e.g. talking, picnicking etc). We also recorded the time which people spent doing these activities. We also recorded the gender and approximate age of people.

3.5 Case Study

In our research we used the case study method to make a link between the underlying theory and a “real world”. According to Johansson (2007), “case study methodology bridges the gap between quantitative and qualitative methods in social science”.

Yin (2014, p.18) defines case study as: “an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident”. In this thesis, the subject of inquiry is the social and cultural motives for management practices of lawns in Uppsala.
There are many benefits that case study approach offers. Looking at information beyond data points, understanding more variables that are involved, increasing reliability by multiple sources of empirical information are among benefits of this approach (Yin, 2014).

The process of choosing the case studies for field work for the LAWN project was directly related to historical and cultural characteristics of Swedish urban planning. Swedish private houses (villa areas) are not the dominating features in the urban environment. In Sweden municipal and private housing companies own large amount of land and multi-storey residential housing neighbourhoods with significant amount of lawn areas are the most common typology. (Ignatieva et al, 2014)

LAWN project had chosen three cities in Sweden, (Uppsala, Gothenburg and Malmö) to cover differences in climate conditions and local culture. For this research, I have chosen one case study city, Uppsala, which is situated in the eastern part of Sweden.

Taking into consideration the existing current pattern in Uppsala for multi-storey residential areas we concentrated on two quite distinguished types: 1. The “People's home” (Folkhem) areas created in 1950’s and 2. “Million Programme” (Miljonprogrammet) built in 1960’s-1970’s.

As for the sub-case studies, I chose Tuna backar (Figure 6) for People’s Home area and Gottsunda for Million Programme area.

![Figure 6. Tuna Backar, 1951. Unknown photographer, Source: City Archive](image)

### 3.6 Scope & Limitations

As a part of the LAWN project, this research aims to specifically study Uppsala lawns from the social and cultural perspective with focus on motives for decisions about establishment and management of lawns among different stakeholders. We are also taking into consideration the sustainable management practice of lawns and studied the historical roots, perceptions, norms and usage of lawns among public in Uppsala.

This research however was not intended to examine all other ecosystem services (except for the social aspect) that lawns provide for urban environment. Positive or negative environmental impact of lawns in Uppsala was also not within the scope of this research.
Due to the time restrictions, interviewing golf managers and golf players as well as the villa owners were excluded from this research. All respective interviews and survey questions were prepared in both English and Swedish. Also due to limitation in time, we have not done observational studies during late afternoons and weekends. Despite many written and phone contacts made with politicians from major parties, (i.e. Swedish Social Democratic Party, Moderate Party and The Liberal Party) only one politician from Swedish Social Democratic Party replied and agreed to be interviewed via email. The representative of the Swedish Green Party agreed to be interviewed but then sent a replacement person instead. He answered some of the questions. I was told that the rest of the questions will be answered via email. Despite sending reminders, no one has replied yet. Several contacts (email and phone calls) were made trying to plan interviews with the site manager of Gottsunda and the site manager of Tuna backar from Uppsalahem (Uppsala’s housing corporation) but they never replied back.
4 Empirical Study

Findings for this research is combination of various sources, including reviewing literatures related to the historical perspective together with in-depth interviews, survey interviews and observational studies (including notes and photographs). These sources offered many insightful perspectives on the motives for establishment and management of lawns in Uppsala as well as history, perception, norms and use value of Uppsala lawns. A number of official documents by Uppsala municipality completed this research’s data finding. In this part I will present the main findings that relate to the discussion of the paper and the research questions.

4.1 Case Study Selection

4.1.1 Uppsala

Uppsala is the fourth largest city of Sweden after Stockholm, Gothenburg and Malmö. It is located 70 km north of the capital Stockholm (Uppsala Kommun, 2014). In (Figure.7) Sweden is among other Nordic countries. It is marked by dark colour.

![Figure 7: Map of Sweden among other Scandinavian countries. Source: Lonely Planet.](image)
In (Figure.8) we can see an old map of Uppsala.

![Figure 8: Uppsala map year 1920, Source: Uppsala Kommun, 2014.](image)

Uppsala is situated on a fertile Uppsala flatland of muddy soil and has humid continental climate. The city’s “Fyres River” (Fyrisån) flows through the city. Uppsala offers a wide range of parks and green areas to its residents and visitors. The city is 48.8 km² from which the total area of 10.5 km² is covered by nature (Parkplan för Uppsala Stad, 2013).

Total area that Uppsala municipality maintains and manages is 7.5 km², which is covered by 54% park and 46% nature (Parkplan för Uppsala Stad, 2013).

One example of Uppsala’s unspoiled nature is “The City Forest” (Stadskogen) which is situated in the west part of the city within walking distance to the residential areas. It is a popular and well-used recreation area for strolling, exercise and nature experiences (Uppsala Kommun, 2014).

Uppsala has 173 parks of different sizes. An example of Uppsala’s many parks is Uppsala’s 150 years old “The City Garden” (Stadsträdgården). It is located in the city centre alongside the “Fyris River” and is laid out from 1840 until 1863 on a former hop garden and pasture and clay pit (Uppsala Kommun, 2014). “The City Garden” is a green oasis for people who live in many residential areas around it and it is walking distance from the city centre. It is featured by its famous summer flowerbeds, big scale lawn areas and playing grounds.

Uppsala municipality aims to achieve the goal of 300 meters access to the nearest green area for a citizen (Parkplan för Uppsala Stad, 2013). This is shown in (Figure.9). The green colour indicates 0-300 meters distance from the residential areas to the nearest green area. As it is shows in the picture, the green areas in Uppsala are widely available for people. The urban landscape of Uppsala city explains the Scandinavian’s interest in nature.
Figure 9. Walking distance to the nearest green area in Uppsala. Source: Uppsala Kommun, 2010.

There is high range of green area in Uppsala city. (Figure 10), illustrates the blue patches (water), green wedges and the large parks located around the city. It is clearly indicates the abundant of green and blue infrastructure and the resident’s close proximity to the green areas and nature.

Figure 10. Green and blue infrastructure and large parks of Uppsala city. Source: Uppsala Kommun, 2010.
Residents of Uppsala have an average of 70 m\(^2\) green area per person. People in the southeast part of the city have the highest amount of green area per person (114 m\(^2\)/person) while in the city centre residents have the lowest amount of green area (18 m\(^2\)/person) nevertheless it is not because of less amount of green area in the city centre but the bigger population residing in the city centre (Parkplan för Uppsala Stad, 2013). These relations are shown in the Figure 11. The figure also shows that percentage of total green area is distributed almost evenly throughout the city.

Figure 11. Total amount of green area in each part of the Uppsala city in percentage and total amount of green area per person. Source: Parkplan för Uppsala, 2013.
**Historical Background**

The first green area of Uppsala was actually a monastery-garden which was built in the second half of 13th century. However until the 19th century all urban green areas were still in private ownership (Uppsala Parker, 2013). Lawns introduced to Sweden probably during the end of 17th century as a part of Baroque formal gardens and later in the end of the 18th century as open spaces in picturesque parks. At the beginning of the 19th century the middle bourgeois class influenced the development of Swedish towns and therefore first public parks were created as a place for meeting and socializing (Nolin, 1999, p.321). Sweden’s first public park is “Carolinaparken” which is also known as “Engelska parken”. It was built in 1805 -1830’s. “Carolinaparken” is a very good example of using walkways, grass areas (lawns) and trees in such form that people who stroll, experience a very pleasant walk (Nolin, 1999, p.128). The grass areas (lawns) together with pathways built cohesive structure of the parks. With its uniform green colour grassy areas could help other vegetation to be seen. Therefore the grass area or lawns were purely decorative feature in the garden design and in Swedish context no one could walk on them. In formal French gardens, lawns and grass were used as a part of parterres. They could be found in different forms and shapes for example round, oval or kidney and it is used to be always well maintained (Nolin, 1999, p.110).

One of the reasons why lawn is the most common feature in modern urban landscape can be its symbolic role in global landscape (Ignatieva, 2012, p.139).

By the end of 18th century every town in Sweden had walking paths and public parks (Figure.12). People started using lawns for socializing and different activities. They could sit and play on lawns. Around 1870 the Gardenesque style started to be dominant in Sweden where lawn was used a display for showing exotic trees and shrubs. In the beginning of 19th century the lawns were not very big in size but later by the end of that era they covered quite substantial areas. The grass area was not similar to what we know today as a lawn because it was combination of different sort of grass species.

![Figure.12: Map of Uppsala in 1890’s. Source: Uppsala Kommun, 2014.](image)

Maintenance and management of grassy areas were held in different ways. It started with scythe and grassy areas used to be cut once or twice per week in warm and humid weather or once per month in dry weather and then all the remaining was removed by broom. Lawn mowers were introduced to Sweden by the end of 19th century to cut the grass and make it look tidy and well managed (Nolin, 1999, p.111). In 1890’s many parks in Sweden used to sell the
cut grass so the grass was long and the lawn looked more like meadows. Cutting the grass was practiced once or twice per season (Nolin 1999, p.111).

By the end of the 19th century social movements emphasise on healthier and better standard of living and socializing for the working class who migrated to cities and therefore public parks developed to fulfil the need of more space for socializing. According to Nolin (1999, p.324), “Town councils generally assumed full economic responsibility for establishing new parks”, She explained that land and fund donations happened during this period of time.

In the first half of 20th century national romanticism style prevailed in garden architects and more parks were established. Beginning of the 20th century was also an era for modernism. With the introduction of the modernist style, the parks became a part of the city’s infrastructure (Andersson 2013). Modernism and the architectural style of functionalism spread in Sweden in 1930’s after the Stockholm exhibition (Stockholmsutställningen). Parks and gardens were developed under the influence of functional approach and designed “to improve people’s health”. (Hellner &Vilkénas, 2014, p.19).
Parks were seen as an important part of “People’s House” (Folkhem) during 1940’s and 1950’s. During 1930’s, 1940’s and 1950’s many people were unemployed due to post war situation and municipalities used to hire people. Therefore many people were employed to maintaining the lawns (Elg, personal communication, 2014).

In 1949 for the first time, Swedish made hormones called DIF which were spraying in Uppsala’s city parks to prevent grass, growing tall. This was the first time in Sweden that herbicides in form of hormones were used in the public lawns (UNT, 1949).

During 1940’s and 1950’s there was a good balance between buildings and gardens. Lawns were very well kept in Sweden. Ignatieva (2012,p.145) explains that public parks and gardens in most cases followed picturesque-gardenesque tradition of arranging plants: the lawn was still an essential element of the park’s space together with groups or individual trees with shrubs, flowers.

During 1966-1975 large scale building project called “Million Program” (Miljonprogrammet) was developed (Figure.13). The aim was to build 100,000 households per year for ten years (Andersson 2013, p.230). Vast lawns was very much in this functionalist spirit which allows creating standardized landscapes that should be easy to maintain.

During 1980’s due to economical crash, municipalities in Sweden had difficulties maintaining and managing lawns. That is why trees and shrubs replaced some lawns (Elg, personal communication, 2014).

New environmental approach was accepted in Sweden in 1980’s and 1990’s. Some people referred to lawns as “green desert” to express their low biodiversity of conventional lawns (Westerlund, Interview, 2014).

In many Swedish cities a new landscape architecture approach was accepted. An example of planting more diverse perennial plants instead of lawns can be found in Uppsala Årstaparken located in the north east of Uppsala.
Today, conventional short cut lawns cover 29% and long grass (meadow-type lawns) cover 12% of the area that Uppsala municipality have to maintain (Parkplan för Uppsala Stad, 2013). Lawns have become essential part of modern urban landscape for leisure activities.

4.1.2 Gottsunda

We chose Gottsunda as one of the intermediate scale sub-study to conduct survey interview and observational study in. Gottsunda is a district located 7 km south west of Uppsala centre (Figure.14). The total size of Gottsunda is 15 km² (Berg et al., 2005, p.12). In 2007, it had 9,474 inhabitants of whom 48.7% had a foreign background, (Uppsala Kommun, 2014). 10.8% of total area is covered by green areas. Every person in Gottsunda has 85 m² of green area (Parkplan för Uppsala Stad, 2013. p.7).

Gottsunda’s landscape was covered mostly by meadows and woodland during the 19th century. Gottsundagipen field was stretched out between two woodlands (Uppsala Kommun, 2014).

The majority of Gottsunda buildings were constructed as a part of the “Million Program” (Miljonprogrammet) during 1966 until 1975 (after the World War II as a result of increasing urban population). As a result of this intensive construction, housing shortage in Sweden was solved; “Million program” buildings were criticized for being space less and monotonous (Figure.15). Although there are different types of housing architecture in Gottsunda but the monotony of large scale buildings has decreased the balance between houses and the surrounding nature. Gottsunda is the Uppsala’s most visible contribution to the “Million Program” (Uppsala Kommun, 2014) and it represents the Modernist architectural and planning style. Architects who designed Gottsunda’s buildings after the Million Program period were in an attempt to design buildings with more diverse characteristics. For example houses were built in groups around a small inner garden to increase sense of place. Lawns and trees were and still are major elements in the green areas between houses.
Gottsundagipen (*Figure.16*) today is a vast district park with football field and allotment gardens. The area is covered mainly by lawns and it is used for playing football, growing vegetables, picnicking, socializing and walking. The area has a crucial social value as a meeting and recreational place and a place to do many leisure activities all year round. Many Gottsunda residents (16 out of 30 people) visit Gottsundagipen on regular basis (Survey interviews, 2014).

Recently, municipality has developed a path between Gottsunda Centrum and Gottsundagipen. They made this path by taking away some berry bushes and old trees and establish some lawns for people to enjoy and feel safe. There are also plans to make more lawns in the areas (Johansson, Interview 2014). There are future plans to establish more lawns in the southern part of Gottsunda to add more meeting place to the area (Parkplan för Uppsala Stad, 2013, p.13). There are plans offered by politicians to build more houses on green spaces in Gottsunda which is due to housing shortage in Uppsala (Westerlund, Interview, 2014).
4.1.3 Tuna Backar

Tuna backar is located 2 km north of Uppsala’s city centre (Ingmar, 2013, p.8) (*Figure.17*). The area has a good access to parks and green areas with protected pathways for the locals and visitors to do exercise and outdoor activities. According to Ingmar (2013) in 2009, there were 3181 inhabitants in Tuna backar.
Tuna backar was built in 1947 as a part of major building extension in Uppsala which was due to the housing shortage that accrued in Sweden after World War II and decades thereafter (Ingemar 2013, p.3). The building period from 1941 until 1960 in Sweden is known as “People’s Home” (Folkhemmet). “People’s House” period is often called golden age of Sweden’s 20th century architecture and it is also an international model (Rudberg, 1987). Buildings were designed in a high quality, hand crafted style and are valuable in cultural, historical, architectural and social terms (Figure.18).

Tuna backar area was designed by the city architect Gunnar Leches who moved parks to the housing backyards but still established vast public open space for social and sport activities such as boll games. Tuna backar has a good balance between buildings, courtyards and parks (Uppsala Parker, Riktlinjer, 2013, p.24). The buildings formed sheltered courtyards facing south. Courtyards provided space for community which previously had been placed in the parks (Gustavsson & Wahlström, 1979, p.120).
From 1950’s t courtyards started to have playgrounds, meeting and recreation places. Before 1950’s courtyards had been mostly functional and ornamental features (Persson & Persson, 1995, p.48). Large cohesive areas of lawns were called to made pleasant view over the courtyard. (Figure.19)

Figure.19. Tuna backar buildings courtyard and playground, Uppsala. Photo: Hajar Eshraghi 2014.

Today 10.8% of Tuna backar is covered by green area and every resident has about 51 m² green areas available (Parkplan för Uppsala Stad, 2013, p.7). Near the “Fyres River” there are outdoor pools and sports facilities. Also “Fyrishov Stugby och Camping” is a place where people can camp there as well as play boll games and badminton on the lawns (Figure.20).

Figure.20. ”Fyrishov Stugby och Camping”, Tuna backar, Uppsala. Photo: Hajar Eshraghi, 2014.
4.2 Collected Data

4.2.1 Interviews

I have conducted eight in-depth interviews with the professionals in Uppsala municipality and Uppsalahem (Uppsala’s housing corporation). These interviews transcribed, analysed and divided into some sections. Please find the results of interviews below (Table.1).

<table>
<thead>
<tr>
<th></th>
<th>Politicians</th>
<th>City planner</th>
<th>Managers</th>
<th>City gardener</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social</strong></td>
<td>- A place to be, to gather and to socialize in</td>
<td>- A place that people use for different activities</td>
<td>- Public lawns belong to people and should be appealing</td>
<td>- To Picnic</td>
</tr>
<tr>
<td></td>
<td>- Meeting place</td>
<td>- A place for meeting and relaxing</td>
<td></td>
<td>- To feel calm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Very important element that provides social ecosystem services</td>
<td></td>
<td>- To walk on</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- To help people get outside houses</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- To play football games</td>
</tr>
<tr>
<td><strong>Cultural</strong></td>
<td>- A key element for urban citizen’s well being and healthy life</td>
<td>- To experience the nature</td>
<td>- Sunbathing, relaxing and enjoyment</td>
<td>- Historical value</td>
</tr>
<tr>
<td></td>
<td>- Recreational, aesthetical and mental health</td>
<td></td>
<td></td>
<td>- To feel the nature</td>
</tr>
<tr>
<td></td>
<td>- To experience the nature</td>
<td></td>
<td></td>
<td>- Recreational and aesthetical values</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Improving mental and physical health</td>
</tr>
<tr>
<td><strong>Regulatory</strong></td>
<td>- “Park plan for Uppsala”, “Uppsala Parks, Guidelines” and</td>
<td>- “Park plan for Uppsala” and “Uppsala Parks, Guidelines” are written for</td>
<td>- “The Green Fact” is a manual that used for maintenance.</td>
<td>- Sociotope mapping is a good tool to study what people do and where they</td>
</tr>
<tr>
<td>/Policy</td>
<td>“Comprehensive plan 2010”, provide guidelines about green space planning and</td>
<td>letting politicians know that there must be more focus on parks as the city</td>
<td>- Lawns should not get higher than 10 cm.</td>
<td>do outdoor activities</td>
</tr>
<tr>
<td></td>
<td>municipality’s development</td>
<td>is growing very fast</td>
<td>- They should be very green with no patches visible</td>
<td>- “The Green Fact”, “Park plans for Uppsala”, “Uppsala Parks, Guidelines”</td>
</tr>
<tr>
<td></td>
<td>- Change the policy according to party opinions (S)</td>
<td></td>
<td>- Weeds should be taken care of.</td>
<td>are used as an instrument to help municipality to plan for green space.</td>
</tr>
<tr>
<td></td>
<td>- Following the overall plan (C,MP)</td>
<td></td>
<td></td>
<td>- According to guidelines there should be:</td>
</tr>
<tr>
<td></td>
<td>- Difficult to be in opposition with the majority and be concerned about</td>
<td></td>
<td></td>
<td>Parks for society’s benefit, Parks nearby, Parks for everyone, Beautiful</td>
</tr>
<tr>
<td></td>
<td>environmental issues</td>
<td></td>
<td></td>
<td>and green parks, Cultural, historical parks, Parks for biodiversity, Parks</td>
</tr>
<tr>
<td></td>
<td>- Different opinions regarding the size, quality and quantity of green areas</td>
<td></td>
<td></td>
<td>for limited climate effect</td>
</tr>
</tbody>
</table>
| Regulatory /Budget | -Handing out budgets for new parks and gardens  
-Budget for the municipality has been strained last year  
-Instead of cutting budget we can engage refugees in the society by recruiting them to maintain the green areas | -There is always budget to build new parks and areas as it comes from two sources: politicians and the exploitation organization.  
-Budget for maintaining old parks and areas comes from the tax money and is never enough. | -Budget did not decrease in the recent years  
-Budget for lawns in Uppsala is approximately 6,524,343 Kr/year | -Budget did not decrease in the recent years |
|-------------------|--------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|
| Regulatory /Future plans | -Providing 300 m access to the green area for each citizen  
-Two major parties in the government (S and D) are emphasising on building houses which will end up to decreasing green areas including lawns | -Should find spots for establishing new parks and green areas in the outskirt of city  
-Citizen’s popular spots should be recognized and marked so that city planners can build houses in other unpopular spots.  
-Threats to the future of lawns | -Green areas (including lawns) are diminishing because politicians emphasis on building houses. | -It is not easy to protect the lawns in Uppsala as the city is growing  
-There are possibilities to use plastic lawns in the squares and very crowded areas in the dense parts of the city |
| Regulatory /Management | -Should be well cut and look good for people to use the area  
-It is up to the committee’s decisions to keep, manage, develop and expand the green space in Uppsala  
-Politicians have responsibility for the entire public environment as they call it “The public room”  
-The mission is to protect the lawn areas as they are recreational areas for citizens. | -Should be kept short to be useful for walking or picnicking  
-Well kept and manicured  
-If they stop cutting the lawns in Uppsala the area will be filled with one or two types of weed which are not diverse nor beautiful and pleasant to see or having them around | -Should look good and welcoming for people using it.  
-Should check and control the 10 cm policy for lawn’s height.  
-It takes 2 to 3 days per week to cut the lawns.  
-No fertilizers, no pesticides unless needed in problematic area  
-We cut the lawns regularly and take care of the weeds  
-Small an big mowers are used for cutting lawns plus the trimmers  
-North and Southwest are managed by two private entrepreneurs, central and east is managed by municipalities own maintenance department. | -Should be perfectly green  
-“The Green Fact” is a bible for maintenance and management  
-Should be well kept and well designed to attract people  
-The maintenance can be changed according to how important and useful the area is in people’s opinion and sociotope mapping helps to recognize these areas  
-Different areas in Uppsala city are mowed in a different routines e.g. Lawns in the parks or residential areas are mowed more often than lawns along the roads.  
-People in
Citizen’s engagement in managing the lawns is not a good idea as it is problematic when it comes to injuries and safety issues and dealing with the insurance companies also complexity and confusion that occurs among the workers that which area has been managed and by who. We rely on subcontractor because they are the experienced people in the field.

Other ecosystem services of lawns are: binding CO2 and other greenhouse gasses, cleaning the air, managing the rain water.

- Could be boring
- People do not want bee and insects in their lawns
- Natural corridors should be expanded for bees and other insects as well as lawns that is good for people
- Parks should have more bio diverse elements e.g. trees, bushes and flowers

The 12% long grass that we have in Uppsala should be either converted to housing site or lawns because it is not useful for people.

- Meadows and grass free lawns are not alternatives to lawns
- Not easy to maintain grass free lawns and keep them neat
- Not easy to establish meadows in Uppsala as the soil is very rich in nutrition
- In order to establish meadows in Uppsala it needs to take the top soil and all the plants away and then establish meadows.
- Good lawn is a well kept lawn that should cut it very often and keep it clean and neat and well maintained
- For concerns about biodiversity we should consider it in other places in

End of spring and the entire summer is when we work most
- A good lawn is a lawn which will resist harsh weather condition and excessive usage; it should look good and very green.
- Keep the height 5-10 cm and cut it often, use fertilizers and water it often.
- Meadows should not be near residential areas. They don’t look well kept
- People in the city use to see very well maintained lawns.
- We have problems with politicians as they are more concern on building houses than developing or keeping green areas.

To convey maintenance perspective
- Small and graduate changes in the environment is much more appreciated among people than the entire big changes and new places all the time
- Sometimes it is good for people to feel that they are not framed by nature so they can enjoy the lawns
- The perfect lawn is very green very well kept and exactly like a green carpet
- Not easy to establish meadows in Uppsala, the soil is not suitable
- Uppsala municipality likes to establish alternative lawns should make sure that it will work in a long period and will not be problematic
- Villa owner should have fewer lawns in
urban environment because lawns are essential for urban environment - Politicians always want to build new projects to get a good reputation

their gardens they should replace them with flowers and other types of vegetation - Politicians only talk about greenery to gain more votes, their main concern is building houses

**Table 1.** Interview responses. These data gathered during interview sessions with stakeholders in Uppsala during March 2014 until June 2014. Please note that “S” is a short from of The Swedish Social Democratic Party, “M” is Moderaterna, “C” is The Centre Party and “MP” is The Green Party.

### 4.2.2 Surveys

The next set of data gathered through survey interviews which were conducted with 30 respondents from Gottsunda and 20 respondents from Tuna backar (Table 2).

<table>
<thead>
<tr>
<th>Survey for Multifamily Residential (Gottsunda &amp; Tuna backar)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traditional lawns</strong></td>
</tr>
<tr>
<td>- Very valuable for children families</td>
</tr>
<tr>
<td>- Valuable for people who live in the flat and don’t have their own garden</td>
</tr>
<tr>
<td>- Good nature experience</td>
</tr>
<tr>
<td>- Good for people who can not travel outside city for financial or other reasons</td>
</tr>
<tr>
<td>- Grass in the park, camping area or by a lake is not lawn. Lawn is private garden</td>
</tr>
<tr>
<td>- Lawn is a green surface that is cut often and is a better alternative that concrete and stones</td>
</tr>
<tr>
<td>- Well kept, well managed green area (28 out of 50)</td>
</tr>
<tr>
<td>- Is safe and comfortable for both children and adults</td>
</tr>
<tr>
<td>- Gives the feeling of an open and broad landscape</td>
</tr>
<tr>
<td>- Very valuable for people who live in dense areas</td>
</tr>
<tr>
<td>- Lawns are cut too often in the neighbourhood and the noise from lawn mower is disturbing</td>
</tr>
<tr>
<td>- It is essential to have lawns in the neighbourhood</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Alternative lawns</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Meadows are Beautiful</td>
</tr>
<tr>
<td>- Meadows with annuals Looks good and gives the feeling of freedom</td>
</tr>
<tr>
<td>- Meadows are Great for wildlife</td>
</tr>
<tr>
<td>- Different feeling and experience to have meadows around in the city</td>
</tr>
<tr>
<td>- Meadows are impossible to use or walk or play on</td>
</tr>
<tr>
<td>- Not very pleasant when one have allergies or Hay fever</td>
</tr>
<tr>
<td>- Meadow area as a “forgotten land”</td>
</tr>
<tr>
<td>- Combination of traditional lawns surrounded by high meadows are beautiful and practical</td>
</tr>
<tr>
<td>- Lawns surrounded by meadows give the feeling of limited and closed space</td>
</tr>
<tr>
<td>- Grass free lawns for housing sites are colourful and useful, beautiful and not boring</td>
</tr>
<tr>
<td>- Grass free are suitable for small areas</td>
</tr>
<tr>
<td>- Not beautiful, not suitable for sitting/laying down, playing or walking,</td>
</tr>
</tbody>
</table>
difficult to maintain and manage, difficult to keep neat and tidy (20 out of 50)
- Not suitable for children to walk or play
- Not suitable for children for health concerns (e.g. getting stung by insects)

**Biodiversity and ecological thinking**
- Lawns provide habitat for small animals such as rabbits, mice, frogs and birds as well as insects. (24 out of 50)
- The more diverse plantation provides better habitats for animals and insects. (24 out of 50)
- Planting some flowers and more diverse colours to the garden is a very good idea
- Combining traditional lawns with meadows and other alternatives is very acceptable (34 out of 50)
- A mixture of open (lawns)/partly open (bushes)/closed (e.g. forest) green areas is preferred
- Flowers and meadows should be away from housing sites because of the amount of weeds and insects they attract
- Insects are diminishing because of monoculture planting. They lost their habitats
- Bees are disappearing (Many people)

**Use value**
- Despite the aesthetical value of alternative lawns, they are not useful for everyday activities (majority of people)
- Lawns are useful for picnicking, playing balls and other sports, resting, partying, getting together, walking, sunbathing, play area for kids
- Majority use lawns in springtime and summertime
- Some people use lawns all year around (10%)
- Use lawns for cross country ski or walking during the winter

**Additional thoughts**
- Have an access to lawns and green areas is very valuable
- It is a good idea to grow food instead of so much lawns
- Using sheep instead of lawn mower which could be a better option for the environment

Table 2. Multifamily houses’ survey responds. These surveys conducted from 28/04/2014 until 05/06/2014 with total 50 individuals in Gottsunda and Tuna backar districts in Uppsala. The English and Swedish versions of the surveys can be found in Appendix VII and VIII.

The people who we conducted survey with were 56% female and 44% male. They were 16% in the group age of 15-24 years old 36% is in the group age of 25-50 years old, 24% in the group age of 51-65 years old and 24% were above 65 years age. Their educational background was 20% primary school, 34% high school and 46% had university education.

46% of the respondents were employed and 56% were either unemployed, student or retired person.

Figure 21 includes background information of total 50 people. It includes gender, age, education and occupation (job) information of interviewees. It is shown the equal distribution in gender, occupation and the age of the respondents.
We had two fixed-choice questions in the survey interview. The questions and their answers are presented below. The first question is: "How would you rate the following statements regarding the grass area in this neighbourhood?"

<table>
<thead>
<tr>
<th>aspect</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well maintained:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safe place for children and adults:</td>
<td></td>
<td></td>
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<tr>
<td>Beautiful and friendly place:</td>
<td></td>
<td></td>
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<tr>
<td>Suitable for leisure activities:</td>
<td></td>
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<tr>
<td>A great place for rest and recreation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Important place for socializing with neighbours and friends:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

(Figure. 22) shows people’s idea about the social characteristics of the lawns in their neighbourhood. Grading scale is from 1 to 5 which 1 represent disagreement and 5 show the agreement with the characteristics of the lawns surrounded their residential or working environment. “M” is the mean value. As it shows in the table, all of the aspects have their mean values above the midpoint on the scale (3.0)
The second fixed-choice question is about how frequently lawns in the neighbourhood are utilised for different purposes. For example how often the lawns are used for doing exercises or sitting, etc. The question is:

“*How often do you use lawns for?*”

<table>
<thead>
<tr>
<th></th>
<th>1 = never</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5 = often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise / sports:</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>sit/rest:</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Social activities with neighbors / friends / family:</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>(feast, eating, grill, etc.)</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>To get to other surfaces (like passage):</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>To experience nature:</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>To look at (Aesthetic value):</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
</tbody>
</table>

The figure shows the answers. The grading scale is from 1 to 5 where 1 represents that the lawn is never been used for a specific purpose and 5 indicates that the lawn is often being used for the specific purpose. "M" is a mean value.
4.2.3 Observational Studies

Whilst conducting observational studies in both sites, it was evident that majority of people (33%) walked pass the lawns and spend only a short amount of time (around 5-10 minutes) there. Walking with prams or wheelchairs (25%) and cycling (24%) were two most popular activities on lawns after walking (passing) the lawns. (Figure 24) Total eight observational studies showed that the only people who stayed longer time in their nearby lawns were kids. The kids were mostly playing (spend more than 15 minutes) in both large and small areas (11%). There were local residents who were standing in their balconies or backyards and enjoying the view or talking to their neighbours (3%), they spend more than 20 minutes on this activity. These studies showed that only one person used the lawns for sitting or resting (spent almost 15 minutes in the lawn). However all our studies took place during daytime and weekdays. We believe that study the usage of lawns on weekdays can only show a glimpse of how people really use them. I also observed that people mostly walk, cycle or run/pass the lawns and not entering the lawns, no matter how big or small the lawn area was.
Figure 24. Results from observational studies in Gottsunda and Tuna backar. The pie chart indicates the percentage of people who used lawns for different purposes during the observational studies. Hajar Eshraghi, 2014.
5 Analysis of Results

This chapter discusses the finding from interviews, surveys and observational studies.

5.1 Motives for Establishment and Management

In order to answer my first question “What are the social, cultural and regulatory motives for decisions about establishment and management of lawns among different stakeholders in Uppsala?” I conducted interview with the professionals in Uppsala municipality and Uppsalahem (Uppsala’s housing corporation). The findings can be correlated to three key elements; social, cultural and regulatory aspects. During the interviews, we had discussions relating to the mentioned themes, an overview of these discussions and their relating themes can be found below.

5.1.1 Social

All professionals had their strongly related social perspective when it comes to establishing and managing lawns. Cilliers (2010, p.81) believed that, cultural and social patterns would effect the types of ecological features people wish for. This was overwhelmingly true for many people interviewed as part of this research. Politicians define lawns as part of an environment where people feel good to be, getting together and socialising (Hanna, Interview, 2014). For them lawn is also the area that perfectly fulfils its purposes and provide all benefits for the people who are intended to use it (Alizadeh, Interview, 2014). They considered lawns as a good meeting place. For example, Swedish Valborg celebration is inconceivable without lawns because lawns are soft and nice to look at even though it is sometimes a bit boring by its commonness (Mankler, Interview, 2014).

I have realised that the professionals had an anthropocentric view over the urban green space and nature. According to Johansson (Interview, 2014), people should be always in focus while providing greening of the city and therefore, importance of having access to lawns and green areas in the nearest proximity of a home was also emphasised by the professionals. Because of this explicitly expressed social aspect of lawns, tasks of lawn managing and maintaining is crucial in their daily activity. Managers believe that the lawns belong to people and in a successful city planning, people’s wish should be considered and respected and therefore lawns and other green areas should be always well maintained and managed.

Westerlund (Interview, 2014) believes that both social and aesthetic aspects should be hand in hand in order to have “good” lawns which fulfil the need of the society. By aesthetical aspect he means only well-kept and well cut lawn.

In order to see how people of Uppsala use lawns and green spaces and what their preferences are, a group of landscape architects have done the sociotope mapping in Uppsala (Parkplan för Uppsala Stad, 2013). Johansson (Interview, 2014), explained that they took surveys of people and interpreted the results on the map. They used both observational studies to see what people do or interviewed some focus groups from pre schools, schools and elderly houses. They also took surveys from other group of people. The questions that were asked from public were: what kind of spaces they are using the most, when they go out and what do they mostly do. The initial result of this research was about 20 maps - “sociotope values. He believes that sociotope mapping is a good tool not only to see what people do and prefer to do in their activities but also for the professionals (for example in housing companies) who want to build on green space and learn about the real usage of those green space. So they could compensate for the lost green areas.

5.1.2 Cultural

Millard (2010, p.69) points out, the continuation for existing the urban greenery is very much related to the perception of people about cultural, recreational and health reasons.
Alizadeh (Interview, 2014) explained that the main focus as a politician in lawn management is possibilities for people to use them. She emphasised on green space as a key element for the urban citizen’s well being and healthy life. Other professionals also believe that lawns play important roles in providing recreational, aesthetical, physical values as well as mental health for citizens however they never expressed any environmental issues that lawns (in such a significant size) could cause.

Carlsson (Interview, 2014) also reflected on cultural aspect by emphasizing on the historical value of lawns by stating that: “We have to have lawns. They have been here for hundreds of years”. This kind of statement probably based on common knowledge from mass media and official national and local guidelines and documents and shows strong attachment of people to lawns.

Most of interviewed professionals and politicians are reported their definition and understanding of a perfect lawn as a grass surface that is well cut, kept, perfectly “green” and “looks good”. However some of the interviewees stated that lawns alone can be boring too and it would be nice to be diluted them with other elements such as flowers and trees.

5.1.3 Regulatory

Professionals at Uppsala municipality try to set and practice policies and regulations in favour to green spaces. The findings can be correlated to four key elements that discussed with the professionals.

Policy

During the 20th century, As a result of some movements towards western democracies, the governments tried to set some frameworks for establishment and management of green areas (Millared, 2010, p.73). In Uppsala, these frameworks can be found in municipality documents such as: “The Green Fact; Maintenance manual for courtyards” (Gröna Fakta; Skötselmanual för bostadsgårdar), “Park plans for Uppsala city” (Parkplan för Uppsala Stad), “Uppsala parks; Guidelines” (Uppsalas Parker, Riktlinjer), “Uppsala in twenty years; A summery of the 2010 comprehensive plan” (Uppsala om tjugo år; En sammanfattning of översiktplan 2010).

For example, Carlsson (Interview, 2014) explained that they use “Park plans for Uppsala city” as a guideline and an instrument for planning for the green space in the city also he referred to “The Green Facts” as a “bible” for maintenance. Politicians confirming the value of: the “The comprehensive plan 2010” and the “Park plans for Uppsala city” which provide guidelines on how municipality is supposed to be developed.

Our research found that different parties have various ways of following or modifying municipality policies. Swedish Social Democratic Party claims that they try to change the municipality’s policy according to party opinions. However The Centre Party and Swedish Green Party declared that they are following the overall plan that has been already decided but they found it challenging to collaborate with the two powerful Swedish parties (i.e. Swedish Social Democratic Party and Moderaterna) as these two party’s decision on exploiting the city and the green space for building more houses may succeed.

Alizadeh (Interview, 2014), claims that they usually have different opinions regarding the size, quantity or quality of the green spaces. She especially pointed out that political differences between parties and their views on green spaces are always existed.

It seems that politicians in Uppsala municipality are very much engaged in “green” arguments and providing budget for establishing new parks and new green areas however, housing demand in Uppsala city have made politician’s decision on developing more green areas very much challenging. Despite all of these challenges, park planners and landscape architects have set some guidelines to be followed in order to use the best possible of the parks and green areas. The overall aims for the guidelines can be found in “Uppsala parks; Guidelines”: 1) Parks for society’s benefit, 2) Parks for all, 3) Parks near by, 4) Beautiful and green parks, 5) Culture and history parks, 6) Parks for biodiversity, 7) Parks with limited climate effect. These seven guidelines could be very useful for park planners and landscape architects to follow.
Budget

In Uppsala 6,542,343 SEK a year is the budget spending on lawn maintenance and management (Westerlund, 2014). Politicians reported that the economy of the municipality has been strained the last year. This has been also mirrored in the expenses of lawn management. However according to city planner, site manager and city gardener of Uppsala, cutting budget has not been decreased as expected in recent years in Uppsala municipality. Uppsala municipality also have a solution to save resources and money that is mentioned in the website (Accessed on 19th of August 2014). It is mentioned, if residents could be more cautious about littering then municipality can save resources for more “fun activities”. For example it is reported that for each 4 trashes that have been thrown to the trash bin and not to the floor, municipality could cut one extra square meter of lawn during whole year. This is shown the importance of maintaining and cutting lawns among the managers and the public.

Future plans of Uppsala municipality

We found that the future plan for green space in Uppsala is to reach the goal of providing for each Uppsalian 300 meters to the nearest green space. However all professionals who were interviewed expressed their concern about diminishing the green areas (including lawns) in the sake of building construction. According to the Carlsson (Interview, 2014) it is not easy to keep and protect the lawns in Uppsala because the city is growing. There were some recommendations from the professionals for example to choose the spots which are more interesting for people and try to keep them or building new parks and areas in the outskirt of city. And the Johansson (Interview, 2014) explained that the future is for plastic lawns especially in dense parts of the city for example the squares in the middle of the city. Thinking of using the plastic lawns could be related to the strong attachment of people to lawns and the idea that open space could always look green, uniform, and well cut however both public and professionals should raise their awareness about the sustainable alternatives to the lawn and not the easy, unsustainable solutions.

Management

Johansson (Interview, 2014) expressed, because of the economical reasons and environmental concerns, Uppsala municipality prioritizes managing the lawns. As an example they focus more on cutting and managing the areas that people are commonly use compare to lawns along the roads and streets or other places that people do not directly use them. I think these kinds of areas could be a good potential to turn into alternative lawns such as meadows or grass-free lawns. This kind of practice is already existed in German and some other European cities. Managing the lawns in Uppsala is partly done by some entrepreneurs and sub-contractor and partly is done by municipality. There are concerns about the way entrepreneurs do their job. Carlsson (Interview, 2014) believed many people who working in the maintenance filed in Uppsala municipality need to learn more about their job and be more educated. This indicates lack of knowledge among the workers that could lead to not managing the areas in a sustainable way. I found out that gaining information about managing the lawns by asking questions about the mowing regime, type of fuel, amount of fuel used or type of mowing machines from the managers was not an easy task as they could not provide detailed information and they would refer to the entrepreneurs who do the main part of maintaining the lawns. To my findings, establishing contact with entrepreneurs was difficult and time consuming. We asked about participation of local residents in the process of designing and maintaining of green areas and found out that the idea is not encouraged by the professionals. They disagreed with the idea and explained the “difficulties that might occur”, “safety and security issues” and “confusion for the workers” were among the reasons for not accepting the idea.

It was very interesting to find out that in the bigger picture; however it is up to politicians who are making decisions about managing the green space. Alizadeh (Interview, 2014) explained: “It is up to me and my committee’s decisions to keep, manage, develop and expand the green space we already have.”

Our analysis is confirmed that in Uppsala more attention is given to the development rather than the maintenance of green areas. For instance maintenance has been only mentioned in the economic part in “Uppsala parks; Guidelines”: “To maintain and manage the parks in a way that the invested value last.”
Johansson (Interview, 2014) also supported this view by conveying the maintenance perspective. He believed that in this way citizen would even take better care of the place they live in. This idea is very interesting when the maintenance is more sustainable than development but if development happens in favour of more sustainable solutions and alternatives for the current situation, it should be appreciated.

5.2 Public’s Perceptions and Attitudes

In order to answer the second question which is “How do people in Uppsala perceive, understand and use lawns in different ways?” I have conducted survey interviews on people. Analyses of the findings are below.

5.2.1 Perception

Almost everyone interviewed believed on importance of having accesses to green areas and this was more emphasised among children families. Tzoulas et al (2007) researched on people’s behaviour towards greenery as a way to regulate their moods. Kim and Kaplan (2004) explained that people feel attached to the community where there are green spaces in neighbourhood. These are all indicators that show the importance of green spaces. Our survey results also approve these ideas but we wanted to know what people mean by green space? Is it nature or man-made green area? People had different perspectives. We classified the results below.

Traditional lawns

People have different perception about lawns. For some people lawn is a peace of small scale green carpet in the housing gardens but for most of the people lawn is a green surface in different size and shapes that is cut once in a while and it is better than concrete or hard surface areas. So that they refer to any sort of greens which cover the ground.

For almost everyone we interviewed, lawn is associated with a well-kept, well managed green area which is a safe and comfortable place for children and adults to be rest and play. We noticed that many people (28 out of 50) refer to lawns as “vårdad” or well kept green space which is also open and broad space especially in dense areas like Gottsunda.

This research found that people have very strong attachment to the lawn for instance despite the fact that the loud noise of lawn mowers is disturbing to some people but they strongly emphasis that it is still essential to have lawns in the neighbourhood and it should be well cut. We also found out that some people believe that maintenance and managing lawns is easy task and that could be because it is very common to see lawn mowers everywhere and people got use to them.

We also found that people from different ethnic background had different perceptions about lawns and green areas. For instance people from African countries or the Middle East believed that lawns are part of nature and they would experience nature when the lawns are located nearby. However for most of e Swedish people, lawn is a man-made part of nature which has been part of Sweden’s landscape for many years.

This research found no specific correlation between age and gender of respondents to their perceptions and visions. The results from one of the fixed-choice questions in survey which is about some characteristics of lawns in their neighbourhood can be interpreted that residents of Gottsunda and Tuna backer are generally satisfied with the lawns in their neighbourhood.

Alternative lawns

Majority respondents believed that meadows and other alternative lawns have aesthetical value and mostly expressed their preference for meadows with annuals (Figure.25) or perennials as “beautiful” or “looking good” and mostly expressed that alternative lawns are great for wildlife.
The issue of Hay fever or allergies when nearby the meadows that was mentioned by some people is a characteristic for the modern society and need to be considered in future search for alternative lawns. Many people liked the idea of combination of traditional lawns surrounded by meadows (Figure. 26). They refer to it as “beautiful and practical”. Interesting enough one person expressed that; lawns surrounded by high meadows gives the feeling of limited and closed space which also indicates interesting perception of open space which was nurtured for at least 150 years of using English landscape park model of pastoral picture of trees and open grasses-lawns.

Grass-free or flower rich lawns (Figure.27) however had different impressions on people. Some really liked the idea and the fact that it is “beautiful”, “not boring”, “colourful and useful” for housing sites and private gardens but some people (20 out of 50) did not like this sort of alternative lawn. They expressed different reasons like “not beautiful”,

Figure 25. Meadows with annuals. Photo: Hellner & Vilkénas, 2014.

Figure 26. Meadow with perennials. Photo: Hellner & Vilkénas, 2014.
“not suitable for sitting / laying down/ playing or walking on”, “difficult to maintain and manage compare to traditional lawns” This kind of responses again reflects the commonly used image of lawn as “clean and green” and the urge to educate people about alternative solutions. As Nassauer (1995, p.161) states, the natural appearance of many ecosystems is in contrast with cultural norms for clean and manicured appearance. I realised that it is difficult for people to believe that they can walk on flowers without damaging them. Here is also can be an educational factor that shows the new alternatives to the conventional lawn are very novel and unknown.

Figure 27. Grass-free or flower rich lawns. Source: Hellner & Vilkénas, 2014.

Almost everyone said that meadows with annuals look beautiful but impossible to play on or walk on them. One of the residents however expressed her positive feeling towards meadows expressing about “feeling of freedom”. This indication gives to urban environmentalists hope for turning point in urban citizens’ perception about the value of biodiversity in cities. Some people now can associate well maintain lawns with the control of nature by man. Due to lack of knowledge, families with children expressed their concerns about meadow type areas. They found alternative options “not suitable” for children to play or walk on. The other issue was health concerns about the long grass that it might be a good habitat for ticks. This can be related to Eaton’s (1990 a,b) argues about the problem of “addressing cultural expectations to ecological function” that should be solved through the “translation of ecological patterns into cultural language.”

Biodiversity and ecological thinking

The majority of interviewers were aware of environmental issues. In my opinion it might be related to the fact that almost half of them have university education. Almost half of the respondents (24 out of 50) believe that lawns provide habitats for some smaller animals such as rabbits, mice, frogs and birds although majority of them noticed that bees and butterflies are disappearing. The other half expressed that with more diverse plants and flowers come more insects, birds and other animals. This is a very good indicator that raising public’s knowledge could lead to have more responsible citizens. I have noticed that people are witnessing environmental issues and observing loss of biodiversity the problem is that they are facing a lot of cultural pressures through media and even from their neighbours that what looks good is good. That makes it difficult for them to change the so called norms. But there are hopes that with raising knowledge about the ecosystem functions, more understanding of the urban ecosystem and what is really good can be achieved.

According to the surveys, many people would like to add flowers and more diverse colours to their green space. Also the idea of combining traditional lawns with meadows and other alternative lawns was very welcomed by most of the people (34 out of 50) and this can be related to what Nassauer (1995, p.162) explained as “human intention” in
settled landscapes. She believed that people expect to see the look of human intention in urban landscape and when this expectation is fulfilled by designers and planners, they understand that it is “nature” and find it pleasing.

5.2.2 Use Value

Majority of people believe that despite the aesthetical value of alternative lawns, they are less useful than the traditional lawns.

For many people lawn is a green grass that is used for picnic and playing balls. One of the respondents was mentioning that “If you want to rest, or fest, or walk then it is good to do it on [traditional] lawns” however some of the people were emphasising on the need for much more food growing areas because lawns are only useful for sunbathing and kids play area.

Majority of people use lawns during spring and summer. Only small fraction of people (10%) used lawns all year around. They stated that they would either walk or use cross- country skiing during winter times. According to Gehl (2001, p.11), there are three types of outdoor activities: necessary activities, optional activities and social activities.

Our observational studies show that during weekdays lawns are mostly used for walking and cycling which according to Gehl (2001), are two examples of the “necessary activities” which are less dependant to the exterior environments. However we did not ask about the intention of the walking or cycling as we were only observing the activities. The assumption of categorizing our observations mostly based on the “necessary activates” which according to Gehl it means everyday tasks, comes from the fact that people did not stay for long in or nearby lawns or did not come back to the same place after certain amount of time. If they would have stayed longer or came back again in a short time, we could have interpreted that these activities are categorized under “optional activities” which according to Gehl (2001) is very much dependent to the exterior physical conditions (i.e. lawns). So we can conclude that for most of the activities that we have observed the quality of exterior environment which was lawn and green area was not very important. However these observational studies can only show a small glimpse of the real usage of lawns as they held during only during weekdays and for limited occasions. According to our observational studies, children were very keen to stay or play in or nearby lawns. (Figure.28)

Figure.28. Children prefer to walk on the lawn. Photo: Hajar Eshraghi, 2014.
5.3 Sustainability Issue

In order to answer the third research question “How sustainable is current management practices of lawns in Uppsala? What can be done to make Uppsala lawns more sustainable?” I had a deeper overview of the in-depth interviews and conversations with the professional level, considering my own observations and also public surveys. Analysing the subject in documents and literature about Uppsala lawns in relation to sustainability and ecosystem services, I have almost found no information. To answer this question I use the concept of “three pillars of sustainability” (TBL), which are a powerful tool to define sustainability problem. An overview of the discussions and findings in accordance to the three pillars of sustainability can be found below:

5.3.1 Social

According to both professional and the public levels lawns in Uppsala fulfil many social requirements. Lawns are open spaces or “green carpets” where many social activities are taking place such as walking, resting, sunbathing, playing different games, picnicking and gatherings. Many people feel safe, free and relaxed when they are in an open space. This open space usually means lawns to most of the people and this perception is because lawn is a dominant element of urban landscape.

For many people lawn is a very important part of urban nature that has social, cultural and historical values. Some people cannot imagine or even accept any alternatives to replace the lawns. It is at least 200 years of history that lawns exist in urban landscape and there is a strong support from the media and lawn industry to make them very popular all over the world. Globalisation has made the lawn one of the most powerful symbols of success of market economy (Hellner & Vilkénas, 2014).

Another reason for popularity of lawns in Sweden can be found on the perception of “easy to have, easy to maintain” among majority of people. This research has found that lawns have been socially, culturally and practically accepted amongst public and professionals. People usually connect well cut and extremely managed green areas to the urban context and longer and diverse vegetation to the wilderness that should be kept in the outskirt of the city. There are many myths about meadows and “freedom” lawns which are to a large extend rooted in the Christian believes of seeing wild nature as a threat, un controlled and “evil” place (IngNatieva, 2011).

5.3.2 Economical

Our research confirmed that Uppsala lawns do not get irrigated and there is almost no use of herbicides and fertilizers for them (except when it is needed in some areas). As there is no evidence of amount of fuel has been used, there is no estimation on the costs. According to a report from the “Swedish Association of Local Authorities” (Svenska kommunförbundet), "Municipality’s road maintaining and park management in 2001” (Kommunernas väghållning och parkskötsel 2001), “it appears that the lawns are the largest expenditure in a municipal park management budget. In 2001, the maintenance cost for Sweden communal grass area is a total cost of 340 million SEK. This compares with the second largest expenditure item that is "hedges and bushes" at 169 million SEK (Swedish Association of Municipalities, 2002). In Uppsala 6,542,343 SEK a year is the budget spending on lawn maintenance. However the total budget for all other maintenance including clipping trees, shrubs or perennials is 2,302,172 SEK a year (Westerlund, 2014). It indicates that the high maintenance of lawns is economically costly.

5.3.3 Environmental

According to Robbins (2007), there is a lot of information about major environmental issues but there is a lack of knowledge about our everyday landscape.
This research found that although environmental issues have been addressed by professionals but still there is lack of long term planning and ecosystem thinking among managers and decision makers. This research investigated deeply in management practices of lawns by asking questions about the materials and routines in establishing and managing the lawns from the professionals in order to draw some results that could show how environmentally friendly or unfriendly the lawns are. Collected information is about type of seeds and their origin, irrigation regime, use of herbicides, pesticides and fertilizers, mowing regimes, number of cuttings per year, amount and type of fuel for the mowers.

According to city planners, city gardeners and site manager, lawns in Uppsala in most cases do not need irrigation and using fertilizers and pesticides (pesticides are prohibited to use in Sweden). However, there is no clear information available about the lawn mowers, the amount of fuel which they take and number of cuttings which can indicate negative influence. I found that mowing and their numbers are not important matter amongst Swedish managers and planners.

Recent world’s studies of lawns show that, since the lawn is a cultural product its appearance is highly dependent on endless maintenance which makes the traditional lawn a source of pollution due to mowing and herbicide application (Ignatieva & Stewart 2009). According to “Uppsala’s comprehensive plan 2010”, parks and open space should be maintained in more intensive way in order to reach the goal of “successive high quality and experience”. It is meant all the green areas near the housing sites, schools, alongside the roads and squares and all should be intensively maintained and well kept. This plan shows that due to plans for high maintaining the lawns in Uppsala, the future is not going to be in the favour of environment. (Översiktplanen , 2010, p.27).

5.3.4 Sustainability

To reach the goal of sustainability urban green areas should be cost effective, simple to maintain, require little water and other recourses and to contain high biodiversity alternatives. With regards to biodiversity, urbanization is a main threat to global biodiversity. Management, planning and design of urban biodiversity should be applied in the light of sustainable urban development to sustain the future of global biodiversity. (Müller et al., 2010) This research found that some politicians believe that lawns could be good for biological diversity because they can become small islands of biodiversity within very dense cities and some others believe that presence of wildlife into the lawns is an important feature to lawns and green spaces. However we know that lawn as a monoculture planting with a few type of grass can not be considered as a rich and biodiverse environment. Espmark (Interview 2014) believed that biodiversity should be sought in other contexts because lawns are essential to the urban life and they should not be diminished because of biodiversity concerns. Lack of environmental knowledge is a main issue when considering the notion of sustainability amongst both professionals and public.

Although meadows have more species richness and variety and could be sustainable alternatives to the lawns but our research found that the planner, gardener and managers are not in hurry on realisation of this sustainable urban initiative. They declare that meadows are “difficult to establish”, “not a good alternative for residential area” and “not suitable for Uppsala”, “aesthetically valuable but not useful”, “health concerns due to many insects and ticks they might attract” and sometimes they would not even consider meadows as alternative to lawns.

Due to the above concerns there even are threats to the already existing meadows and long grass areas in Uppsala. There are plans for converting the meadows in “Karolinaparken” or “Engelska parken” to lawns. The reason is that people can not walk on meadows and they are afraid of ticks so there are no social values for this place. However there were no official social surveys which such “concerns” are based. This perception is based on the rumour and not any scientific data or research. The main reason behind such declaration about threats from insects or ticks is lack of knowledge and basic environmental education. Our conclusions are corresponded with other world’s social urban studies. For example based on the South African research, (Cilliers, 2010) shows that there are very much misunderstandings in different aspects in urban environment such as “aesthetic, safety, health and ecological, economic and mobility”. McDonnel (2007) explains the misunderstandings among public and planners about urban nature that should be identified and argued in order to solve biodiversity issues in urban environment. As an example he points out that public generally perceive man-made and well maintained gardens and lawns as nature without knowing about low biodiversity characteristics of these areas.

I believe that to achieve this goal there is a need for more transdisciplinary collaborations to fill the gap between scientists and public and find solutions for urban issues.
As McDonnell (2007) suggested, cultural and social aspects of urban environment and nature should be in alignment with ecological knowledge and be able to interpret and transfer the knowledge to public.
6 Recommendations

In order to have sustainable lawns in Uppsala’s green area, there is a need for collaboration among all stakeholders including public.

Education

Through the course of this research I found that education is a crucial part of changing perception and believes of both public and professionals in order to move towards a sustainable urban management. Ecological and environmental awareness should be raised among both professional level and public level in forms of workshops, demonstration trials, manuals, environmental impact analysis and assessments.

Local social structures and cultural practices are very important when it comes to educating people and raising awareness. In this research we found out that Uppsala people are keen to learn about new alternative solutions therefore there is an urge to interpret ecological information about biodiversity and sustainability in a language that all people could understand and try to adapt cultural desires to recognize new alternative forms that include greater biodiversity. For the new forms of ecologically rich landscapes to be sustained, Nassauer (1995, p.169) suggested that these new forms must be recognized and sustained by people in everyday life. Alternative lawns can be also demonstrated in special experimental trail designs in real parks or gardens.

Alternative lawns

Ignatieva & Ahrné (2013, p.6) suggested two alternative sustainable solutions for creating lawns and green infrastructure in Europe which can be implemented in Uppsala as well, first studying composition of perennial communities (in terms of species richness and density, functional groups and growth forms) and how they should be managed in order to maintain their species richness over time and also remain aesthetically attractive.

There is a real need in creating of special demonstration experimental trials which can be established and monitored in a way that their maintenance becomes economical. These trials should provide opportunities to examine the various combinations of exotic and native species and “ensure sustainability in relation to urban fauna and wild life and the value of attractiveness and public perceptions”.

The LAWN project had already designed and demonstrated ten alternative plantings as alternative sustainable solutions for conventional lawns in SLU, Uppsala (Figure 29).

Figure 29. Trial with lawn alternatives, Designed by: LAWN project, SLU, Uppsala. Photo: Maria Ignatieva, 2014
Planning

Achieving sustainable lawns could be done in the light of sustainable planning from large city/district level green spaces to townscape courtyard green in smaller communities and building/site-level green elements. Sustainable planning in the city scale could be achieved by professionals who have deepened their environmental and sustainability knowledge in order to integrate different functions in the city and ensure “versatility, wealth of experience, social sustainability and a feeling of security” in urban environment (Gehl, 2010, p.232). However city’s planners are need in urgent special ecological education which would give knowledge about urgent necessity to change conventional approach of seeing short grass as a “pure” panacea and the most “green” element of green areas design. Ignatieva & Ahrné (2013) emphasised on an importance of advertising a new innovative concepts in city’s planning and design such as biophilic urban landscape and “design with nature”. It can be very important visual tools for reinforcing urban biodiversity and make it more visible and recognizable for the decision makers, politicians and general public. It is suggested to go for the biodiversque style which is based on ecological knowledge and adjusted to local climate and biotic conditions, in planning and designing of urban open space. According to Ignatieva & Ahrné (2013), biodiversque style promotes biodiversity and can be a driving force for creating sustainable green infrastructure (e.g. lawns) and also have positive economic impact by creating job opportunities in challenging economic times.

Planning in building and site level can be initiated by changing the usual routines for example less frequent mowing regimes and providing some information in forms of leaflets to let the local people know that the maintenance is not neglected and it is going to be done less frequently in favour to the economics, environment and urban biodiversity.

One of the most crucial points in promoting a new vision on traditional lawns can be providing real numbers showing economic benefits from decreasing the number of mowing and other maintenance costs in conjunction with showing the negative influence of contemporary lawns on climate change (due to use of fossil fuel) and impact on the environment. The main problem for the most Swedish municipalities is the lack of such data.

Importance of research and new data for politicians and mass-media

There is a need of changing the perceptions about the lawn among the professionals who are responsible for designing and implementing urban green areas at different scales: from city comprehensive plans to local neighbourhoods. City planners, landscape architects and horticulturalists must be familiar with the latest research achievements in ecological design and the benefits (including economical) of a new landscape architecture practices compare to conventional technique.
7 Conclusion

This research has investigated lawns in Uppsala from the historical, social and cultural perspectives in order to examine the motives for decisions about establishment and management of lawns among different stakeholders in Uppsala municipality and Uppsala’s housing corporation, through the transdisciplinary framework. We tried to fill the gap between scientists and society by initiating a dialog in order to study the lawn, one of the main elements of Uppsala’s green areas. I tried to challenge the professionals by asking questions about their understanding of the lawns, urban biodiversity, ecological thinking, policies and plans.

After discussions with planners, managers and politicians I find out that although they are very enthusiastic to move towards ecological thinking and sustainability, their environmental and ecological knowledge is superficial or not in the first priority as the pressure from the housing demand in Uppsala turned all the attention towards house building projects.

During the course of this research, I tried to use three pillars of sustainability or “triple bottom line” model to study sustainability of the current management of Uppsala lawns. Assessing and investigating social, ecological and economical aspects of lawn’s management it was concluded that the social aspects are concealing the environmental and even economical aspect of lawn managements. To my knowledge managing lawns is a costly business. Although in Uppsala there is almost no use of herbicides and fertilizers and there is no frequent irrigation regime but mowing lawns are very frequent. My efforts to find data on fuel usage, costs, mowers type and amount of cut per hectare or cut per meter did not meet any relevant answers. Even the type of seeds and their origins were not of interest of the managers. But from what I have observed during field works and every day life and due to significant amount of lawns in Uppsala and high demands from both public and professionals to keep them well maintained, cutting lawns has become a frequent routine. There is no estimation of mowing costs as well as the possible side effects such as noise pollution and air pollutions that might affect people’s health. This could be considered for future researches. This study did not cover the private gardens (villa) and the golf courses as well as other cities or countries with different climate or different social and cultural conditions. It is recommended that further research be undertaken to develop a more in depth understanding of the strong attachment of people to lawns as well as the motives for managing them. (The LAWN project is covering some of theses aspects in different cities of Sweden).

In the light of sustainable city and transdisciplinary frameworks I asked public about their perceptions, understanding and usage of lawns. The strong attachments of people to lawns are rooted deeply in the history of parks and English style gardens, religious beliefs of controlling nature, Swedish multifamily housing styles as well as years of advertising lawns by mass media. People also have a common vision that establishing and maintaining of lawn is very easy task in Swedish environment. This is again influenced by media and the multibillion lawn industry.

Other environmental impacts of lawns such as loss of urban biodiversity were also discussed with professionals and public. Their answers were indicating that raising awareness is needed among people. However even though majority of people witnessing the biodiversity loss, it doesn’t have important message for them. Social aspects take their attention away from the environmental issues. Nevertheless I have found interests in sustainable solution (alternative lawns) among professionals and general public. Education is very strong tool to raise ecological and environmental knowledge of people and enable them to see beyond the everyday unsustainable patterns of their urban life.

Introducing alternative lawns can open up a new window for people: they could change their visions and norms. Since “seeing is believing”, by setting up demonstrations sites, workshops, colourful leaflets, media and group discussions, we can get closer to the ideal sustainable city and see a more diverse and sustainable lawns in our neighbourhood and not just a green carpet.
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References


Berg, P.G. (2010). Timeless Cityland; An interdisciplinary approach to building the sustainable human habitat, Book II- Sustainable Community Development, SLU, Uppsala.


Hellner, A. & Vilkénas, J. (2014). In search for sustainable alternatives to lawns; Connecting research and landscape design, Swedish University of Agriculture Sciences, Department of Landscape Architecture, Planning and Management, Faculties for Urban and Rural Development, Landscape Architecture, Uppsala.


Uppsala Nya Tidning, UNT, No. 19, (19/7-1949), Hormonbesprutning tar kål på ogräs i stadens parker


Online Sources:


(Accessed: 2014-08-14)

http://www.uppsala.se/sv/Kulturfritid/Parker-lekplatser/Parker/Stadstradgarden/

(Accessed: 2014-08-14)

http://www.uppsala.se/sv/Uppsalase/English-startpage/
(Accessed: 2014-08-14)

http://www.uppsala.se/sv/Boendemiljotrafik/Stadsutveckling--planering/Oversiktsplan/Oversiktsplan-2010/

Interviews:

Alizadeh, N. Politician from Swedish Social Democratic Party (Socialdemokraterna), Uppsala Municipality. Interview via Email. 2014-04-29

Carlsson, I. City gardener (stadsträdgårdsnästare), Establishment Unit (Enheten för förvaltning), Department of Street, Park, Nature (Avdelning gata park natur), Community Development Office (Kontoret för samhällsutveckling), Uppsala Municipality. Interview. 2014-05-09

Espmark, H. City planner, park planner, project leader of “Park Plan for Uppsala City” (Parkplan för Uppsala Stad), Establishment Unit (Enheten för förvaltning), Department of Street, Park, Nature (Avdelning gata park natur), Community Development Office (Kontoret för samhällsutveckling), Uppsala Municipality. Interview. 2014-06-25

Hanna, S. Politician from The Centre Party (Centerpartiet), Uppsala Municipality. Interview. 2014-05-05

Johansson, L. Former city gardener of Uppsala and current head of Landscape Architecture Unit. Department of Urban and Rural Development, SLU, Uppsala. Interview. 2014-03-25


Olsson, V. Site manager (arbetsledare) of Erkisberg, Uppsalahem (Uppsala’s housing corporation). Interview. 2014-04-28

Westerlund, P. Green space manager of Uppsala municipality, Management Unit (Enheten för förvaltning), Department of Street, Park, Nature (Avdelning gata park natur), Community Development office (Kontoret för samhällsutveckling), Uppsala Municipality. Interview. 2014-04-22
Personal Communication:

Elg, R. Doctoral Student, Lecturer, SOL, Landscape Architecture Unit, Department of Urban and Rural Development, SLU, Uppsala. *Meeting: 2014-03-20*
Appendix I – Questions for local politicians

1. How long have you been working in this municipality?
2. What is your political party belonging?
3. Briefly describe your responsibility as a politician for the lawns, green spaces and areas in Uppsala?
4. How do you plan for the lawn management in Uppsala from a political viewpoint?
5. Are you following your municipality policy or modifying it according to your political party’s opinion? What is this policy? Please name it.
6. How is the collaboration with the other political parties in this field? Have you different opinions?
7. How is the collaboration with the clerks and other professionals at the municipality level?
8. Are there any problems from your viewpoint connected to the lawn management in your City? Examples?
9. Have you come across in recent years with any suggestions to cut down the expanses for lawn management? Why? Examples?
10. What is your understanding of lawns and its role in modern green area?
11. What is a “good” lawn in the city in your opinion?
12. Why do you think it is important to have lawns in modern green areas?
13. In your opinion what are the different purposes of lawns in urban environment?
14. What are your political party’s plans concerning lawns?
15. What is your opinion about opportunities of presence of wildlife such as bees, butterflies in lawns?
16. If you could design a “perfect” lawn what would it look like? Please describe the components.
17. How would you like to design it and organize the management?
18. What are the plans in future for the Green parts in Uppsala? (more or less etc)
19. Do you have anything else you would like to add?

Frågor till lokala politiker

1. Hur länge har du arbetat i denna kommun?
2. Vad är ditt politiska parti tillhörighet?
3. Beskriv kortfattat ditt politiska uppdrag för gräsmattor, grönytor i Uppsala?
4. Hur planerar du för förvaltning av gräsmattor i Uppsala ur din politiska synvinkel?
5. Följer du din kommuns riktlinjer eller modifera du dess enligt ditt politiska parti tillhörighet?
6. Hur samarbetar du med de andra politiska partierna i denna fråga? Har ni olika åsikter?
7. Hur är samarbetet med tjänstemän och andra yrkesgrupper på kommunen i denna fråga?
8. Tycker du att det finns något problem med förvaltning av gräsmatta i ditt område? Ange gärna med exempel?
9. Har du kommit med några förslag om att skära ner kostnaderna för förvaltning av gräsmattor under de senaste åren?
10. Vad är din uppfattning om gräsmattor och dess funktion i stadsmiljöer?
11. Vad är i ”bra” gräsmatta i staden enligt dig?
12. Varför tycker du att det är viktigt med gräsmattor och gröna utrymmen i stadsmiljöer?
13. Vilka är de viktigaste funktionerna för gräsmattor i stadsmiljö?
14. Vilket parti politiska planer har du för framtida utvecklingen av gräsmattor i kommunen?
15. Anser du att gräsmattor generellt sett skapar en bra miljö för djur att leva i, t.ex. Insekter och fjärilar?
17. Hur skulle du vilja göra med design och förvaltning av denna gräsmatta om du kunde bestämma själv?
18. Vad är framtida planer för de gröna ytorna i Uppsala? (Mer eller mindre osv.)
19. Har du något ytterligare du vill tillägga?
Appendix II – Questions for City Gardeners

1. How long have you been working in this municipality as City gardener?
2. Have you been working in this position in other municipalities?
3. Briefly describe your responsibility in this municipality.
4. What is your education? Have you other practice in this field?
5. How do you plan and organize the lawn management in the municipality?
6. Do you have a municipality policy for Lawn management and Green areas?
7. What are the resources (economy, staff etc) connected to the lawn management in your municipality?
8. Have you come across in recent years with any suggestions to cut down the expanses for lawn management? Examples? Consequences?
9. What is your understanding of lawns and its role in modern green areas?
10. Why do you think it is important to have lawns in modern greens areas?
11. In your opinion what are the different purposes of lawns in urban environment?
12. Do you think some participation from local residents in the management of lawns could be a good option for saving money or other resources?
13. What are your plans/ideas concerning lawns?
14. Can you see alternatives to traditional Lawns? Examples?
15. What is your opinion about opportunities of presence of wildlife such as bees, butterflies in lawns?
16. If you could design a “perfect” lawn what would it look like? Please describe the components
17. How would you like to design it and organize the management if you could plan the management without any economical limitations?
18. Do you have anything else you would like to add?

1. Visions and strategies for the green area management of the area.
2. Background and policy documents related to lawns in the municipality.
3. Economic resources (background) and how it impacts on plans for management and planning today and tomorrow?
4. Historical data on lawn data on land use in the city (what was on the place of lawns before-forest, farm etc.)
5. Establishment of current lawns (construction details, sources of soils, seed mixtures (local or international nurseries)
6. Management history (past and present)
7. Irrigation
8. Use of pesticides and fertilizers
9. Mowing regime (frequency: how many times and when)
10. What type of mowers does the municipality use?
11. How many hours of cutting are required per ha?
12. How many cuttings per year for the different kinds of Lawns?
13. How much diesel is used per m2 and year, or ha, year for each specific type of lawn?
14. Support from the political level (political parties) and the City Council

Frågor till Stadsträdgårdsmästare

1. Hur länge har du arbetat i denna kommun som stadsträdgårdsmästare?
2. Har du arbetat i denna position i andra kommuner?
3. Beskriv kortfattat dina arbetsuppgifter i denna kommun.
4. Vad har du för utbildning? Har du någon annan utbildning i samma område?
5. Hur planerar och organiserar du förvaltningen av gräsmattor i kommunen?
6. Har ni speciella riktlinjer för förvaltning av gräsmattor och gröna ytor?
7. Vilka resurser (Economist stöd, personal etc.) är anslutna till förvaltningen av gräsmattor i din kommun?
9. Vad är din uppfattning om gräsmatta och dess funktion i stadsmiljöer?
10. Varför tycker du att det är viktigt med gräsmattor och gröna utrymmen i stadsmiljöer?
11. Vilka är de viktigaste funktionerna för gräsmattor i stadsmiljö?
12. Tycker du att medverkan från de boende kan vara ett bra alternativ när det gäller skötsel och underhåll av gräsmattor för att spara pengar eller andra resurser?
13. Vad har du för planer och tankar rörande den framtida utvecklingen av gräsmattorna i kommunen?
14. Har du något förslag att ersätta gräsmattor mot något annat alternativ? Exempel?
15. Anser du att gräsmattor generellt sett skapar en bra miljö för djur att leva i, t.ex. insekter och fjärilar?
16. Om man skulle kunna utforma en ”perfekt” gräsmatta vad skulle du vilja göra? Beskriv de komponenter.
17. Hur skulle du vilja göra med design och förvaltning om det skulle vara inga begränsningar på ekonomiska resurser?
18. . Har du något ytterligare du vill tillägga?
8. Användning av bekämpningsmedel och gödningsmedel
9. Klipp regim (hur många gånger och när)
10. Vilken typ av gräsklippare använder kommunen?
11. Hur många timmar av gräsklippning behövs per hektar?
12. Hur många gräsklippningar per år behövs för olika typer av gräsmattor?
13. Övrig verksamhet? (vad vi vill veta är hur mycket diesel används per m² och år, eller ha, år för varje specifik typ av gräsmatta)
14. Stöd från den politiska nivån (politiska partier) och kommunfullmäktige
Appendix III – Questions for local park managers and Uppsala municipality

1. How long have you been working in this local municipality?
2. How long have you been working particularly with lawn management?
3. Briefly describe your responsibility as a site manager during different seasons.
4. What is your education?
5. How do you work with the lawn management?
6. Are you following your municipality policy or modifying it according to your experience and current circumstances? What is this policy? Please name it.
7. Are there any problems from your viewpoint connected to the lawn management in your area? Examples?
8. Have you come across in recent years with any suggestions to cut down the expenses for lawn management?
9. What is your understanding of lawns and its role in modern green areas?
10. Why do you think it is important to have lawns in modern green areas?
11. In your opinion what are the different purposes of lawns in urban environment?
12. Do you think some participation from local residents in the management of lawns could be a good option for saving money or other resources?
13. What are your plans/ideas concerning lawns (development)?
14. What is your opinion about opportunities of presence of wildlife such as bees, butterflies in lawns?
15. If you could design a “perfect” lawn what would look like? Please describe the components
16. How would you like to design and organize the management of lawns?
17. Do you have anything else you would like to add?

1. Visions and strategies for the green area management of the area.
2. Background and policy documents related to lawns.
3. Main household types of the area.
4. Economic situation (background) and how it is impact on plans for future management and planning
5. Historical data on land use (what was on the place of lawns before-forest, farm etc.)
6. Establishment of current lawns (construction details, sources of soils, seed mixtures (local or international nurseries)
7. Management history (past and present)
8. Irrigation
9. Use of pesticides and fertilizers
10. Mowing regime (frequency: how many times and when)
11. What type of mowers do you use?
12. For this specific lawn type, how much diesel is used for cutting per hour?
13. How many hours of cutting are required per ha?
14. How many cuttings per year?
15. Other operations? (what we want to know is how much diesel is used per m2 and year, or ha, year for each specific lawn type

Frågor till lokala parkchefer

1. Hur länge har du arbetat här i denna funktion?
2. Hur länge har du jobbat med förvaltning och underhåll av gräsmattor?
3. Beskriv kortfattat ditt ansvar som platschef under olika årstider.
4. Vad har du för utbildning?
5. Hur arbetar du med förvaltningen av gräsmattor? Beskriv gärna rutinerna!
6. Följer du din kommuns riktlinjer eller modifierar du denna inför en ändring och några omständigheter? Ange gärna exempel?
7. Finns det några problem med förvaltningen av gräsmattorna i ditt område? Ange gärna exempel?
8. Har du kommit med några förslag om att skära ner kostnaderna för förvaltning av gräsmattor under de senaste åren?
9. Vad är din uppfattning om gräsmatten och dess funktion i stadsmiljö?
10. Varför tycker du att det är viktigt med gräsmattor och gröna utrymmen i stadsmiljö?
11. Vilka är de viktigaste funktionerna för gräsmattor i stadsmiljö?
12. Tycker du att medverkan från de boende kan vara ett bra alternativ när det gäller skötsel och underhåll av gräsmattor för att spara pengar eller andra resurser?
13. Vad har du för planer och tankar rörande den framtida utvecklingen av gräsmattorna i kommunen?
14. Ansvar du att gräsmattor generellt sett skapar en bra miljö för djur att leva i, t.ex. insekter och fjärilar?
15. Om du skulle utföra en "perfekt" gräsmatta vad skulle du vilja göra? Beskriv de komponenter.
16. Hur skulle du vilja göra med design och förvaltning av denna gräsmatta om du kunde bestämma själv helt och hållet?
17. Har du något ytterligare du vill tillägga?

1. Visioner och strategier för förvaltningen av gröna ytor.
2. Bakgrund och riktlinjer som rör gräsmattor inom kommunen.
3. Huvudhushålls de typer av området
4. Ekonomiska resurser (bakgrund) och hur det påverkar dagens och framtida planering och förvaltning?
5. Historiska uppgifter om markanvändningen i staden (Vad brukade man använda marken innan användningen av gräsmatta?)
6. Inrättande av nuvarande gräsmattor (byggdetaljer, källor av jord, frölandningar t (lokala eller internationella plantskolor)
7. Förvaltning historia (dåtid och nuvarande)
8. Bevattnings
9. Användning av bekämpningsmedel och gödningsmedel
10. Klipp regim (hur många gånger och när)
11. Vilken typ av gräsklippare använder kommunen?
12. För denna specifika typ av gräsmatta, hur mycket diesel används för gräsklippning per timme?
13. Hur många timmar av gräsklippning behövs per hektar?
14. Hur många gräsklippningar per år behövs för olika typer av gräsmattor?
15. Övrig verksamhet? (Vad vi vill veta är hur mycket diesel används per m² och år, eller ha, år för varje specifik typ av gräsmatta)
Appendix IV - Questions for City Planner (Project Leader)

1. How long have you been working in this municipality?
2. Briefly describe your responsibilities in this municipality.
3. What is your education?
4. What is your opinion about the current status of green space in Uppsala?
5. What are the plans for future of green space in Uppsala?
6. What would be the changes for revision for “Parkplan för Uppsala”? Any policies/guidelines would be added?
7. What are the ideas and concerns behind the guidelines?
8. What were the limitations and problems you encountered while writing the “Parkplan”? (Exp. Climate change, Environmental changes etc.
9. Why there is more budget to build the new park than to maintain the old parks?
10. What kind of activities you had in mind when writing about recreational areas in Parkplan
11. In the “Parkplan” it is mentioned about lawn (gräsmatta) and long grass (långgräs), why you made this division? What are the differences between these two categories?
12. According to parkplan, 29% of the total area that municipality manage and maintain is lawn. How much budget usually is given to lawn management? Is this enough?
13. In the guidelines, there are emphases on biodiversity. How do you relate this to the fact that a large area (29%) is lawn that is monoculture?
14. What is your understanding (definition) of lawn and its role (importance and purposes) in modern green area?
15. How is the current situation of lawns in Uppsala?
16. What is a “good” lawn in the city in your opinion?
17. If you could design a “perfect” lawn what would it look like? How would you design it and organize the management?
18. What is your idea about the alternative lawns such as grass-free lawns, meadows etc?
19. Do you have anything else you would like to add?
Appendix V – Questions for the Previous City Gardener (in Swedish)

1. Vilken erfarenhet har du av att arbeta med gräsmattor och grönytor i kommuner?
2. Vet att Du arbetat i minst 4 kommuner? Fanns det skillnader och likheter mellan dessa kommuner? I så fall vilka?
3. Vilken yrkeserfarenhet och utbildning har Du inom området?
4. Vad anser Du är rimlig och önskvärd ambition för en kommun med tanke på grönytor och gräsmattor med tanke på:
   a) Omfattning
   b) Förvaltning
   c) Biologisk mångfald
   d) Hållbar utveckling
5. Finns det policy för punkterna a-d inom Parkförvaltningar generellt sett
6. Hur ser Du på det politiska stödet respektive stödet från kommunstyrelsen till enheterna som förvaltar och hanterar de gröna frågorna
7. Vilka visioner har Du själv som fd Stadsträdgårds- och landskapsskulptur när det gäller gräsmattor och grönytor i urbane miljöer? Vilka krav anser Du att man bör kunna ställa på dessa grönytor?
8. Hur ser din ideala gräsmatta ut?
9. Hur ser Du på gräsmattans roll under årets olika säsonger?
10. Har du förslag till alternativa gräsmattor? Exempel?
11. Vilka funktioner/användningsområden bör en ”bra gräsmatta” ha?
   e) Socialt
   f) Ekologiskt
   g) Organisatoriskt
   h) biologiskt
12. Övrigt
## Appendix VI – Observation Guide

<table>
<thead>
<tr>
<th>Activities</th>
<th>Total amount of people</th>
<th>Age</th>
<th>Gender</th>
<th>Time spent</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walking with dog</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walking with baby stroller or wheelchair</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cykling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sitting, Resting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picnic, Grill, Fest</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading/working/using computer/telephone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix VII – Survey (in English)

SURVEY FOR MULTIFAMILY RESIDENTIAL- LAWN PROJECT
Thank you for participating in our scientific investigation on lawns and grass areas in your neighbourhood. For more information about our project please visit: www.slu.se/lawn
Date:……………………………………… Time:……………………………………
Weather:…………………………………… Place :………………………………
Interviewer:………………………………

Background:

<table>
<thead>
<tr>
<th>Gender:</th>
<th>Female ()</th>
<th>Male ()</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age:</td>
<td>15-24 ()</td>
<td>25-50 ()</td>
</tr>
<tr>
<td>Education:</td>
<td>Primary school()</td>
<td>High school ()</td>
</tr>
<tr>
<td>Occupation:</td>
<td>Employed ()</td>
<td>Unemployed ()</td>
</tr>
</tbody>
</table>

1) Are you related to this place/neighborhood?
   Work here ( ) Visitor ( ) Live here ( )
   If you live here, how long have you been living here?

2) How do you perceive the value of having access to a lawn / grass areas in your neighbourhood?

3) Are there lawns here or nearby that you usually visit?
   Yes ( ) No ( )
   If yes then which one/ones?

4) How do you see the maintenance of grass areas in your neighborhood in general?

5) What do you think about lawns that are cut only 1 or 2 times per year (for example meadows)

6) What are do you think about alternative lawns (such as grass-free lawns, meadows with perennials or annuals? See photos below)

1) Grass-free lawn  
2) Meadow with perennials  
3) Meadow with annuals
Please comment on the different options:

7) If you could decide, how would you like to design grass areas in your neighborhood?

8) How would you rate the following statements regarding the grass area in this neighbourhood?

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well maintained:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safe place for children and adults:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beautiful and friendly place:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suitable for leisure activities:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A great place for rest and recreation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Important place for socializing with neighbors and friends:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9) Do you think that lawns generally create a good environment for many animals to live in, such as insects, birds, mammals?
   Yes ( ) No ( ) Partially ( )
   Why?
   Why not?

10) How often do you use lawns for?

<table>
<thead>
<tr>
<th>Activity</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise / sports:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sit/rest:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social activities with neighbors / friends /family:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(feast, eating, grill, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To get to other surfaces (like passage)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To experience nature:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To look at (Aesthetic value):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If “other”, please specify.
11) Which season do you use lawns foremost?


12) Is there anything you would like to add concerning lawns and green areas?


Thank you very much for your participation!
Appendix VIII – Survey (in Swedish)

ENKÄT TILL BOENDE I FLERFAMILJSHUS – LAWNPROJEKTET
Tack för att du deltar i vår vetenskapliga undersökning angående gräsmattor och grässytor i ditt bostadsområde. För mer information om vårt projekt besök gärna: www.slu.se/lawn.
Datum: .................................................. Klockslag: ........................................
Väder: .......................................................... Område: ............................
Intervjuare: .................................

Bakgrundsfrågor

<table>
<thead>
<tr>
<th>Kän:</th>
<th>Kvinnan ( )</th>
<th>Mann ( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ålder:</td>
<td>15-24 ( )</td>
<td>25-50 ( )</td>
</tr>
<tr>
<td>Utbildning:</td>
<td>grundskola ( )</td>
<td>gymnasium ( )</td>
</tr>
<tr>
<td>Sysselsättning:</td>
<td>arbetar ( )</td>
<td>arbetar inte ( )</td>
</tr>
</tbody>
</table>

1) Vilken relation har du till platsen/bostadsområdet
Arbetar här ( ) År besökande ( ) Bor här ( )
Om Du bor här, hur länge har du bott här?

2) Hur upplever du värdet av att ha tillgång till en gräsmatta/grässytor i ditt bostadsområde?

3) Finns det grässytor här eller i närheten som Du brukar besöka?
Ja ( ) Nej ( )
Om ja, i så fall vilken/vilka?

4) Hur ser du på skötseln av grässytorna i ditt bostadsområde generellt sett?

5) Vad tycker du om grässytor som slås 1-2 ggr per år (t.ex. äng)?
6) Vad anser du om alternativa gräsmattor (till exempel blomrika gräsmattor, ängar med perenner eller annueller? se bilder nedan)

![Blomrika gräsmatta](image1.png)  ![Äng med perenner](image2.png)  ![Äng med annueller](image3.png)

Kommentera de olika alternativen:

7) Om du själv fick bestämma, när det gäller gräsytorna i ditt bostadsområde, hur skulle du vilja ha dessa utformade?

8) Hur skulle du gradera följande påståenden angående gräsytorna i ditt bostadsområde?

<table>
<thead>
<tr>
<th>Påstående</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Välskött</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Säker plats för barn och vuxna</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vacker och trevlig plats</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lämplig för fritidsaktiviteter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>En bra plats för vila och rekreation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viktig plats för att umgås med grannar och vänner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9) Anser du att gräsmattor generellt sett skapar en bra miljö för många olika djur att leva i, t.ex. insekter, fåglar, däggdjur?

Ja ()  Nej ()  Delvis ()  

Varför/Varför inte?
10) hur använder du gräsmattor:  

<table>
<thead>
<tr>
<th>Aktivitet</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motion/sport:</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sitta/vila:</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sociala aktiviteter med grannar/vänner/familj: (fest, åta, grilla mm.)</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>För att ta sig till andra ytor (som passage):</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>För att uppleva naturen:</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Att se på (estetiskt värde):</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annat:</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Om annat, i så fall vad?

________________________________________________________________________

11) Vilken årstid använder du gräsmattorna främst?

________________________________________________________________________

12) Finns det något du vill tillägga angående gräsmattor och grönytor?

________________________________________________________________________

Tack för din medverkan!