

**PÅLSJÖ FOREST**  
**ACTUAL SITUATION AND EVALUATION OF THE FOREST MANAGEMENT**



***Urban Forestry and Urban Greening***

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## FOREWORD

At the end of the comprehensive masters program in *Urban Forestry and Urban Greening* during the period summer 2005 - summer 2006 and arranged by the *Swedish University of Agricultural Sciences*, SLU, Alnarp, I have chosen to work with *The Actual Situation and Evaluation of the Forest Management of Pål sjö Forest* as my degree thesis. Pål sjö is located in the northern part of Helsingborg, a small town in the province of Scania, in southern Sweden.

The *Urban Forestry and Urban Greening* masters program has the code LP0401. The whole one year program gives 40 credits (60 ECTS) and the actual degree project is valid 10 credits (15 ECTS) within this program. The *Royal Veterinary and Agricultural University*, KVL, Denmark, has hosted half the courses in Copenhagen.

The degree project's examiner is Professor Dr. Bengt Persson from the *Department of Landscape Management and Horticultural Technology*, SLU, Alnarp.

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## SUMMARY

According to the Statistic Central Bureau the municipality of Helsingborg has 122.000 inhabitants and the green areas close and around 5 Km downtown are very scarce. In the Reconnaissance maps of 1820, a big area in the northern part of the town of Helsingborg was covered with agricultural lands. Today all these areas has been built and Pålshj is located right away in the northern part of the town. Pålshj forest is one of the most used and impacted green areas in Helsingborg. Almost everyone knows and uses the area very often, and this severe use added to the air pollution caused by traffic and industry is impacting this green area.

The actual forest landscape itself has been going through a series of uses, characters and development. Today the dominant beech trees are probably going to take over in the future with the consecutive eradication of oaks. It is possible to experience in the forest today more and more oak trees disappearing. The reason for this is not well known since there are not deep studies into this field. In some places it is possible to see that beech trees are taking over because they are dominant and this diminishes light and nutrient conditions for other species. In some other places the standing water could be negative for all growing trees. Fungi diseases are as well in the list of the factors that are killing trees in Pålshj.

The forest itself has become into its final phase of developing and unfortunately it seems that there is no future to it. The beech trees are taking over and the variation of the landscape, biodiversity and even recreation will be drastically reduced. Already in 1941 the landscape expert Mårten Sjöbeck stated that Pålshj is going to die if nothing was done. In the mean time Victor Anjou, then Helsingborg's park department chief, trying to regenerate the forest opened some stands by means of thinning, action that was much criticised even by the press.

I plan to develop my project within the landscape planning using the character assessment and both communication and comparison as methods. In the last course of *Communicative Planning, Design and Management of Urban Woodlands* I learned and experienced how valuable is communication. I will gather information by interviewing and talking to local managers about their feelings, experience and suggestions in order to plan a future development for Pålshj forest. The comparison will be made with reference forest within the same municipality and will give an idea of the different managements. The landscape character assessment will show the actual status of the forest and its uses.

The managers of Pålshj forests are *Helsingborg's building bureau*, responsible for the creation of management plans, the *park department* which is the total administrator for the area and the local contractor, *ENTEK*, responsible for the practical work. The contact language during the whole field work study is Swedish, translated to English for the elaboration of this document.

The reference forests are represented by *Småryd forest*, part of it declared Nature Reserve in 2005 and administrated by the municipality of Helsingborg, and *Rosendal's oak grove* owned by the family Bennet since the middle of the 18<sup>th</sup> century. According to maps from the Swedish Geological Research, Pålshj, Småryd and Rosendal have more or less the same soil type, which is mainly moraine with some till.

The main aim of this project work is to find out the actual status of the Pålshj forest by interviewing its key managers in order to develop a more dynamic, diversified and safer landscape that will meet a future and satisfy the needs of the developing community.

## Actual Situation and Evaluation of the Forest Management of Pålshjöö

My objectives with the present work are:

- Get a comprehensive knowledge of the actual forest landscape and its management.
- Get to know the local managers and their actions in order to understand the development of Pålshjöö.
- Understand the development of the actual landscape through time.
- Be able to compare Pålshjöö with other landscape references within the same municipality.
- Gather managers and connoisseurs in order to discuss future management strategies.
- The final objective is to plan a future forest management for Pålshjöö.

*After a balance of the project work, I have decided to leave the last two objectives for a future project where the time and organizational conditions will permit to fulfil them. Economy has not been considered in this project.*

The landscape character assessment produced a complete map of the forest stands and their uses. After the interviews, SWOT analyses were conceived in order to understand the *strengths, weaknesses, opportunities and threats* of the different forest. These analyses showed the status of the forests and at the same time permitted their comparison.

The conclusions obtained are:

- Pålshjöö is in its final stage, and if we do nothing, it will die itself as Mårten Sjöbeck has stated already in 1941. Consequently, actions are to be taken in order to find a management plan to strength the forest stands.
- The dominant tree species in Pålshjöö is beech followed by oak, hornbeam and alder. However, the population of oaks is being reduced in several places, partly because of the competition for light and nutrients. This situation could be improved by creating a more balanced atmosphere through forest management. Future monocultures will only be vulnerable to selective diseases like the Dutch elm disease, and today the ash disease.
- The managers have a lot to share through their experiences, thoughts and interests. This invaluable knowledge and experience needs to be canalized and discussed in order to create more specific strategies for Pålshjöö forest. Not all the managers agree in a certain management however all would like to have improvements. The present document work should be presented to them in order to discuss and visualize possible alternatives.
- Pålshjöö is a *recreational area*. This situation demands a special management for both the security and liability of the visitors and the forest itself in the short and the long term time perspective. According to the Statistic Central Bureau the green areas close and around 5 Km of the towns of Helsingborg and Malmö are very scarce. This emphasizes even more the need of a genuine and well documented development plan.
- Rosendal's oak grove and Småryd forest has more stable and dynamic forest stands in comparison to Pålshjöö. This shows that oriented managements can create stable and dynamic forests. Consequently it should be necessary to find out oriented management alternatives for Pålshjöö in the near future.
- New beech, oak, and hornbeam trees with wide trunks and crowns can be seen after the thinning activities from the early 1940's in Pålshjöö, points out Professor Roland Gustavsson. These specimens should be highlighted when discussing future thinning in order to create contrast in the forest.
- Aesthetics has never been mentioned or taken into account as a priority by the interviewed managers, however it has been present in the back of their heads when describing and taking as a reference the landscape of the province of Scania. It should be stressed in the future the relationship and dynamics of aesthetics in Pålshjöö.

## SAMMANFATTNING

Enligt Statistiska Centralbyrån, SCB, har kommunen Helsingborg 122.000 invånare och andelen grönyta inom 5 kilometer kring tätorten är liten. På Rekognosceringskartor från 1820 täcktes en stor del av norra delen i Helsingborg av åkermark. I dag är samtliga dessa områden bebyggda och Pålsjö ligger i norra delen av tätorten. Pålsjö skog är en av de mest utnyttjade och påverkade grönytorerna i Helsingborg. Nästan alla känner till och använder området flitigt, och detta hårda utnyttjande kombinerat med luftföroreningar orsakade av trafik och industri påverkar grönområdet.

Det nuvarande skogslandskapet har genomgått olika typer av förändringar och utveckling. Det i dag dominerande bokträdet kommer förmodligen att ta över i framtiden med påföljande utrotning av eken. I nuläget upplever man allt mer en minskning av antalet ekar. Anledningen till detta är inte väl känd eftersom det inte finns djupa studier i ämnet. På vissa platser kan man se att bokar tar över eftersom de är dominanta och minskar tillgången på både ljus och näring för andra trädslag. På andra platser kan stillastående vattensamlingar vara negativt för alla träd. Svampsjukdomar är också orsak till att träd dör i Pålsjö.

Skogen själv har nått sin sista fas i utvecklingen och olyckligtvis tycks det inte finnas någon framtid för den. Bokarna håller på att ta över och variationen i landskapet, den biologiska mångfalden och även rekreation kommer att minska drastiskt. Redan 1941 påpekade landskapsexperten Mårten Sjöbeck att Pålsjö skulle komma att dö om inget gjordes. Samtidigt försökte Victor Anjou, Helsingborgs dåvarande stadsträdgårdsmästare, att föryngra skogen genom att gallra ut, något som starkt kritiserades till och med i pressen.

Jag tänker utveckla mitt projekt inom landskapsplanering genom att använda en karaktäriseringskarta och både kommunikation och jämförelse som metoder. I den sista kursen *Communicative Planning, Design and Management of Urban Woodlands* fick jag lära mig och uppleva hur viktig kommunikationen är. Jag ska samla information genom att intervjua och prata med lokala ledare om deras känslor, erfarenheter och förslag för att kunna planera utvecklingen för Pålsjö skog i framtiden. Jämförelsen kommer att göras med andra skogar inom kommunen som referenser och detta ska ge en idé om olika slags skötsel. Landskapets karaktäriseringskarta kommer att visa skogens aktuella tillstånd och användning.

Ledare för Pålsjö skog är *Helsingborgs stadsbyggnadskontor*, ansvarigt för skötselplaner, *parkkontoret*, som är övergripande förvaltare av området, och *ENTEK* som är den lokala entreprenören och ansvarig för det praktiska arbetet. Svenska har varit det språk som kommunikationen förts på, som sedan översatts till engelska för att skriva ut detta dokument.

Skogarna som använts som referenser representeras av *Smårydsskogen*, av vilken delar utsågs till naturreservat 2005 och förvaltas av Helsingborgs kommun, och *eklund* på *Rosendal* som ägs av familjen Bennet sedan mitten av 1700-talet. Enligt kartor från SGU har Pålsjö, Småryd och Rosendal mer eller mindre samma jordart, huvudsakligen moränlera.

Det huvudsakliga målet för detta projekt är att redovisa Pålsjö skogs aktuella tillstånd genom att intervjua nyckelpersoner för att utveckla ett mer dynamiskt, mångsidigt och säkert landskap som kan möta framtiden och tillfredsställa kraven på kommunens utveckling.

## Actual Situation and Evaluation of the Forest Management of Pålsjö

Mina mål med detta arbete är:

- Få en omfattande kunskap om det nuvarande skogslandskapet och dess skötsel.
- Lära känna de lokala ledarna och deras aktiviteter för att förstå utvecklingen av Pålsjö skog.
- Förstå utvecklingen av det aktuella landskapet genom tid.
- Kunna jämföra Pålsjö med andra landskap inom samma kommun som referenser.
- Samla ledare och experter för att diskutera framtida strategier för skötsel.
- Det sista målet är att planera en framtida skötsel för Pålsjö.

*Efter att ha utvärderat projektarbetet har jag bestämt mig för att lämna de två sistnämnda målen för ett framtida projekt där tiden och de organisatoriska förutsättningarna tillåter mig att uppfylla dem. Ingen hänsyn har tagits till ekonomi i detta projekt.*

Landskapets karaktärisering utgjorde en fullständig karta över skogens tillstånd och användning. Efter intervjuerna utfördes SWOT-analyser för att förstå de tre skogarnas styrka, svagheter, möjligheter och hot. Dessa analyser visade skogarnas status och möjliggjorde samtidigt en jämförelse.

De uppnådda slutsatserna är:

- Pålsjö skog är i sin slutliga fas och om vi inget gör kommer skogen att självdö som Mårten Sjöbeck förutspådde redan 1941. Följaktligen måste åtgärder vidtas för att uppnå en skötselplan som stärker skogens olika bestånd.
- De dominerande trädslagen i Pålsjö är bok, följt av ek, avenbok och al. Emellertid minskar beståndet av ek på åtskilliga platser, delvis beroende på kampen för ljus och näring. Denna situation kan förbättras genom att skapa en mer balanserad atmosfär genom skogsvård. Framtida monokulturer kommer bara att bli sårbara för selektiva sjukdomar så som almsjuka och dagens askskottsjuka.
- Ledarna har mycket att delge varandra genom sina erfarenheter, tankar och intressen. Denna ovärderliga kunskap och erfarenhet behöver kanaliseras och diskuteras för att skapa tydligare strategier för Pålsjö skog. Inte alla ledare är överens om hur skötseln ska bedrivas, men alla vill ha förbättringar. Detta dokument ska presenteras för dem för att diskutera och tydliggöra möjliga alternativ.
- Pålsjö är ett rekreationsområde. Detta kräver en speciell styrning av både säkerhet och ansvar för besökarna och skogen själv på kort och lång sikt. Enligt SCB är andelen grönytor inom 5 kilometer kring tätorten i både Helsingborg och Malmö liten. Detta understryker ännu mer behovet av en genuin och väldokumenterad utvecklingsplan.
- Rosendals eklund och Smårydsskogen har mer stabila och dynamiska skogsbestånd än Pålsjö. Detta visar att målinriktad skötsel kan skapa stabila och dynamiska skogar. Följaktligen är det nödvändigt att skapa målinriktade skötselalternativ för Pålsjö i den närmaste framtiden.
- Nya bokar, ekar och avenbokar med grova stammar och kronor ses efter gallringarna från tidigt 1940-tal i Pålsjö, påpekar professor Roland Gustavsson. Dessa träd bör uppmärksammas när man diskuterar framtida gallring för att skapa variation i skogen.
- Estetik har inte nämnts eller lyfts fram som en prioritet av de intervjuade nyckelpersonerna, men har ändå funnits i deras bakhuvuden när de beskrivit och refererat till det skånska landskapet. Detta samspel mellan Pålsjös dynamik och estetik bör man ta hänsyn till i framtiden.

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## Actual Situation and Evaluation of the Forest Management of Pålsjö

### I. INTRODUCTION

Since I live close to Pålsjö forest, I know rather well the area of study and therefore it is interesting to me to contact the local managers in order to find out new perspectives for the future management. The forest today has become into its final phase of developing and unfortunately it seems that there is no future to it. The beech trees are taking over and the variation of the landscape, biodiversity and even recreation will be drastically reduced. Hopefully this work will give a clear status of the situation and the management of Pålsjö forest to its managers. The aim is to lead to the development of a more stable, richer and more interesting forest for the local community and even the neighbourhoods since Pålsjö is well known.

I plan to develop my project within the landscape planning using character assessment and both communication and comparison as methods. In the last course of *Communicative Planning, Design and Management of Urban Woodlands* I learned and experienced how valuable is communication. I will gather information by interviewing and talking to local managers about their feelings, experience and suggestions in order to plan a future development for Pålsjö forest.

The managers of Pålsjö forests are Helsingborg's building bureau, responsible for the creation of management plans, the park department which is the total administrator for the area and the local contractor, ENTEK, responsible for the practical work. The contact language during the whole field work study is Swedish, translated to English for the elaboration of this document.



Figure 1. Pålsjö forest's managers.

#### Site description

Pålsjö forest is located right in the north of Helsingborg, a small industrial town in the northwest of Scania province in the southern part of Sweden. Helsingborg is surrounded by the Öresund Sea by the west and therefore is an attractive town to live in. According to Billing (1999) Pålsjö forest is the most beautiful and used recreational area for the people in Helsingborg; all citizens long for taking a stroll in the spring under the light green beeches and enjoy the wood anemones magnificent flowering.

The west coastal railway connecting Helsingborg with the north is going through the southern part of Pålsjö forest. According to Helsingborgs Turist- och Informationskarta (2001), the Christer Boijes Avenue is crossing the forest from Pålsjö Castle located in the west to the east. The western side of Pålsjö is surrounded by the Henrik Sylvius Avenue and Dag Hammarskjölds



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Avenue and the south eastern side of the forest is surrounded by the Romares Avenue. The motorways E4 and E6 are located to the east of Pål sjö forest.



Figure 2. Pål sjö forest and Helsingborg in 1820 and 2006.

Background © Sveriges Lantmäteriet (1820) and Stadsbyggnadskontoret, Helsingborg (2006).

The forest lies down some meters above the sea level and this maritime location makes it vulnerable to storms. In 2005 part of the beech trees (*Fagus sylvatica*) and oaks (*Quercus robur*) from Pålsjö forest were destroyed by the *Gudrun* storm. According to maps from the SGU (1974) the soil type is moraine with some till, the later meaning stony and clayish. Runeke<sup>1</sup> mentions that the soil is basically acid, and in some areas very acid: 2, 9 pH.

A small ravine is located in the southernmost part of Pålsjö forest heading east-west direction and a small s-shaped stream goes through it and down to Pålsjö mill, close to the sea. Another stream is circulating in the west side of the forest and heading north-south direction. There is a net of smaller water streams in all over the forest.

### Revision of Literature

#### Some history and facts over Pålsjö forest

Narvelo<sup>2</sup> describes Pålsjö's development as going through the postglacial period or tundra where spruce, birch and hazel were typical. Later, the Stone Age, a warm period with mixture of oaks and other noble deciduous trees like elm, linden, hornbeam, ash, wild cherry and Norway maple. In the colder Bronze Age come the beech trees. In the Iron Age the fields are more cultivated and put into production. He points out a special stone wall just in the northern border of the forest heading southeast, and explains that this is a reminiscent of the grazing time outside of the actual forest. Pålsjö was in the Middle Age used as a meadow.

Gustavsson (1994) cites that in a document from 1741 Pålsjö is described as “*a young beautiful forest*” with a characteristic dominance of linden and hazel. The author mentions as well that by the end of the 19<sup>th</sup> century the forest expanded and at the same time some new plantations were created in order to embellish Pålsjö; today is mainly a beech dominated forest right outside Helsingborg. In a very recent visit to Pålsjö, the same author recognizes immediately another stone wall following parallel to the one in the north western edge of the forest and signalize that this was for sure a *fägata* –Swedish for cattle track-.

According to Sahlgren (1925) the name Pålsjö originates from *Powelskøb* which in 1491 had included the name Paul (Paulus, Påvel, Pål) with the ending *køb* meaning a bought estate or farm. In the map, *Skånska rekognosceringskarta* from 1820, Pålsjö is written as *Pålsköp*.

Carlquist & Carlsson (1952) describe Pålsjö as a medieval estate which belonged to the family Bille. The castle was destroyed in a battle in 1679 but reconstructed later in 1685. The family Follin has owned Pålsjö estate since 1833. The municipality of Helsingborg bought the forest and arable land in 1908.

Malmberg (1947) describes Pålsjö with an area of about 65 hectares and having a high groundwater level with lots of herbaceous plants, bushes and trees like hornbeam, alder, ash and linden. He relates this situation to this wet forest often being called in old times as swamps or marsh forests. The author emphasizes of the high value of the alder stand for the birds; this stand is situated in the southeast corner of Pålsjö and here is found bushes as goat willow, crab apple, hawthorn, and blue elderberry among others.

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<sup>1</sup> Runeke, Pontus, personal interview 07/04/2006

<sup>2</sup> Narvelo, Widar, personal interview 04/04/2006

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According to Samuelsson<sup>3</sup> the superficial water remnants has been canalized through a ditches system in the whole forest but lately no maintenance has been done to this system because of the nature based management. He refers that an accurate drainage management of Pålshjöö can help to create healthier forest stands.

Billing (1999) states that Pålshjöö was a production forest from the beginning and that probably a hard thinning occurred before the municipality of Helsingborg bought it in 1908. He describes Pålshjöö as a forest where beeches and oaks are dominant; however hornbeam and alder are forming nice forests stands, he continues. Almost in the middle of the forest a pavilion was constructed in 1914 after the design of Sigurd Lewerentz, a well known architect of this period. In 1917 the finance department decided to keep the alder stand in the upper part of the ravine. In 1919 it was decided by the nature care committee to use nature friendly management in Pålshjöö. The author concludes citing that in 1969 it was built the popular motion path and in 1983 the forest expanded to the north. Some years later started in this new area a tree plantation project that will connect Pålshjöö with Sofiero forest and Maria Park in the north. It is mentioned as well that a meandering hazel corridor was created in 1983 in the little park contiguous to the east of Pålshjöö. Today this corridor is a beautiful green path right outside the forest.

Pålshjöö is easy to reach being actually in direct contact with the north part of Helsingborg. Today a path system connects all the forest parts. There is a special path for mothers and their baby children often carried in perambulators. For the cyclists there is also a cycling path and this is mainly following parallel the couple of motor avenues crossing Pålshjöö. Right outside of the northern borders of the forest goes a riding path in east-west direction. The area has parking areas in every corner and even parking places connected to both the Pålshjöö castle and the solitary Crematorium are being used to visit the forest. For visitors, the central located Pålshjöö pavilion is considered a gathering place. Around the pavilion there are a popular summer Café and a small parking area.

### **Aesthetics in regards to Pålshjöö**

In this forest the aesthetics is remaining in the back of the head of both visitors and managers. This creates a special relationship between them and how to use and how to manage the forest is important. This place is mainly priced both for its ecological value and its beautifulness. Aesthetics is very related to people and many reactions around Pålshjöö have taking place just because of it. Billing (1999) describes the following case: “in the beginning of the 1940’s, Victor Anjou, chief of Helsingborg’s park department, realised that Pålshjöö forest should be regenerated. He started a tree regeneration program by thinning the forest and opening some areas. This caused immediately reaction by the people with strong protests. Carl Björkman, superior forest officer, states that the natural character of this forest should be maintained as much as possible, and that special attention should be put into *pure esthetical values*”.

Aesthetical considerations, nature, history, and sense of place are strong enrooted to Pålshjöö forest and its users and therefore it is important to consider them as a whole in the process of development.

Sjöbeck<sup>4</sup> considers managing Pålshjöö forest as a park in 1941. However, he is worried at that time that the forest can not maintain its natural beauty while being public. He refers already about the

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<sup>3</sup> Samuelsson, Ulf, personal interview 05/04/2006

<sup>4</sup> Sjöbeck, Mårten, speech at the Helsingborg’ s Botanical Association 09/04/1941

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human impact to the forest reducing the natural regeneration possibilities and sinking the groundwater level. At that point he described Pålshj forest as being in its last stage and getting old too premature.

Larsen (1996) refers that a common person's experience and preferences for forests are based on the cultural, social and communicative aspects where this person grows.

According to Kunnaskari (2004), restoration and reconstruction of historical landscapes and ancient natural areas are also issues of aesthetical arguments.

Gustavsson (2004) stresses that woodland design is an activity to be reached through time and is a gift for the future generations; this activity is to be enjoyed from the very beginning through the whole process just because it has to do with dynamics.

Gustavsson & Peterson (2003) manifest that the public, in many occasions accepts a faked historical landscape as a result of historically mimicked landscape management efforts.

Berleant (1992) points out that shared cultural traditions and social influences shape our perceptual experience.

Regarding the interviews, Tyrväinen et al. (2002) states that the ideal information should covers public, professional and scientific aspects. Konijnendijk (1999) mentions that the former situation does not exist because both, the planning and the policy-making of urban forestry, are limited in time, skills and resources.

## II. TASKS AND GOALS

### Definition of tasks

According to the Statistic Central Bureau (2006 respective 2003) the municipality of Helsingborg has 122.000 inhabitants and the green areas close and around 5 Km downtown are very scarce. In the map *Skånska rekognosceringskarta* from 1820, a big area in the northern part of the town of Helsingborg was covered with arable lands. Today all has disappeared and Pålshj is located right away in the northern part of the town. Pålshj forest is one of the most used and impacted green areas in Helsingborg. Almost everyone knows and uses the area very often. This severe use added to the air pollution caused by traffic and industry is impacting this green area.

The actual forest landscape itself has been going through a series of uses, characters and development. Today the dominant beech trees are probably going to take over in the future with the consecutive eradication of oaks. It is possible to experience in the forest today more and more oak trees disappearing. The reason for this is not well known since there are not deep studies into this field. In some places it is possible to see that beech trees are taking over because they are dominant and this diminishes light and nutrient conditions for other species. In some other places the standing water could be negative for all growing trees. Fungi diseases are as well in the list of the factors that are killing trees in Pålshj.

### Vision

As Pålshj forest is so important and a common and familiar place for the local citizens, my vision is to maintain Pålshj as the lungs of Helsingborg by strengthening the qualities of the landscape without losing its character and history. These cultural roots are linking the forest with its

## Actual Situation and Evaluation of the Forest Management of Pålsjö

people. The future may change and therefore it is necessary to maintain the society's identity towards the forest.

### **Aim**

The main aim of this project work is to find out the actual status of the Pålsjö forest by interviewing its key managers in order to develop a more dynamic, diversified and safer landscape that will meet a future and satisfy the needs of the developing community.

### **Objectives**

The following are the objectives of the present work:

- Get a comprehensive knowledge of the actual forest landscape and its management.
- Get to know the local managers and their actions in order to understand the development of Pålsjö.
- Understand the development of the actual landscape through time.
- Be able to compare Pålsjö with other landscape references in the same municipality.
- Gather managers and connoisseurs in order to discuss future management strategies.
- The final objective is to plan a future forest management for Pålsjö.

### **Delimitation**

After a balance of the actual project work, I have decided to leave the last two objectives for a future project where the time and organizational conditions will permit to fulfil them. Therefore this work will deal and develop in order to reach the first four objectives. The economy has not been considered in this project.

## III. MATERIALS AND METHODS

### **Maps**

Historical and geographical maps has been an important source to identify and study Pålsjö forest, its surroundings, and even the reference forests like Småryd and Rosendal, all within the municipality of Helsingborg. The idea has been looking for history, people and its culture, and the influence of both, history and culture, to the landscape.

### **Documents**

Documents such as letters, manuscripts and today the Internet have been a very positive and sometimes unique and very valuable source of information. Photographs also had a huge amount of information telling history and showing the development of people and the landscapes. All of these have been analyzed and used to support this document.

### **Literature**

The reviewed literature had broad spectra within this work and has included history, culture, forestry, landscape, geography, flora, fauna, language and aesthetics among other.

### **Pålsjö forest's stakeholders**

The users of this forest have been classified in two groups according to their activities category. This is considered within the results.

### **Landscape character assessment**

According to Swanswick (2002), the *landscape character assessment* provides the setting for our day-to-day lives. This is a method to study physical, functional, visual and socio-cultural characteristics of landscapes.

For the study of Pål sjö, a forest stand composition was created after visiting the place several times. This is showing the actual status of this sub areas and their use by the visitors. Pål sjö forest, apart from the nice ravine in its southernmost part, is a flatly landscape in topographical terms; therefore a map of this kind has been avoided. Place identity and history has been taking into account in this map and considered on the sub areas descriptions.

### **Interviews in Pål sjö and in the reference forests**

Another method used in this project work has been *interviews*. They produced the ground material for the elaboration of the personal SWOT analysis by both the Pål sjö's forest managers and the respectively manager and owner of Småryd forest and Rosendal's oak grove. With the interviews it will be possible to collect a wide range and amount of information, an *expanding* situation, which later on should be *comprised* into a single SWOT analysis for Pål sjö forest.

The interviews were all personal, in the field and in Swedish. Extra work was put into translation to English and in shortening the answers in order to present concrete documents in this project. It is suggested in the future to make a formal presentation to all the participants in the interviews in order to adjust information before taking a new step. Naturally, this is outside of the time span of the present work.

Regarding the interviews, a single manager was interviewed in an agreed time and date. A little different was the case of Rosendal where the owner of the estate, Baron Gerard Bennet, 87 years old, had been escorted by his son Tomas.

For Pål sjö forest were interviewed two managers from Helsingborg's park department, one manager from Helsingborg's building bureau and finally one from ENTEK which is a local contractor.

For Småryd forest was interviewed another manager from Helsingborg's building bureau and for Rosendal's oak grove, as mentioned before, the Baron Gerard Bennet who was escorted by his son.

Before the interviews took place, I had been by myself in all the three places in different dates. During those opportunities I had been collecting information in paper and photographs, especially the landscape and the forest status and its use.

For the interviews was used a common questionnaire with almost twenty questions for all the persons (see questionnaire in Appendix). Only one question was a little different for the case of Rosendal, adapted to the situation. Simple maps of Pål sjö forest with very basic geographical information were used for the interviews. Some data coming from the managers of Pål sjö was added to the maps.

When we met for the interviews it was suggested a short walk for recognizing the area. There was always an open atmosphere and opportunity to add information to the simple map. When we started with the questions, there were for the most of the time, short and direct answers. Questions were not sent in anticipation to the participants just because it was aimed natural and

## Actual Situation and Evaluation of the Forest Management of Pålsjö

spontaneous answers. In some cases, the participants referred to other sources in order to get more precise answers. In these cases, these new sources were contacted and asked.

Both, during the personal approach to the different areas and during the interviews, photographs were taken in order to register special aspects that will illustrate and strength the information collected.

The aim with the interviews will be to get enough information in order to create the SWOT analysis for Pålsjö forest and the references.

### **SWOT analysis**

The strength, weakness, options and threats analyses made by the interviewed managers are among the most important sources of information for this work. These analyses are indeed part of the results and therefore presented within this chapter.

### **Comparison between Pålsjö forest and the references**

Consecutively after the interviews, the next method to be used is the *comparison* between Pålsjö forest's SWOT analysis and the other two references analyses. This will create a field with a certain number of possibilities which should be discussed in order to consider a future management for Pålsjö forest.

The comparison is possible to be done because all the three areas are close to each other and belongs to the same municipality. According to maps from the Swedish Geological Research, SGU (1974), they have more or less the same soil type, which is mainly moraine with some till. Their differences in management, use and forest composition will give ideas and possibilities for future improvements in Pålsjö.



Figure 3. General view of Pålsjö forest and the references. Background © Sveriges Lantmäteriet.

## IV. RESULTS

### Pålshj forest's stakeholders

The *primary stakeholders* of Pålshj forest are: The municipality of Helsingborg, the politicians, the park department, the building bureau, ENTEK (the local contractor), the library. The citizens are the largest primary stakeholders. Official and unofficial local organisations like museums, tourist office, the church, kinder gardens, schools and university are as well primary stakeholders. Hobby groups like runners, horse riders, cyclists, orienteering groups, dog owners, hunters, belong to stakeholders. The local NGO's like botanists, birdwatchers, ornithologists, conservationists, entomologists, pensioners, handicap union among others are important stakeholders. The landowners like housekeepers, farmers, and foresters belong to this group. Private enterprises, the local press and industries of Helsingborg are considered as primary stakeholders.



Figure 4. Kinder garden children at Pålshj forest.

Among the *secondary stakeholders* are accounted those groups more related with the Scania province, the land and the general region. Here we have the County administration, the Swedish Government, the Ministry of Environment, the Ministry of Agriculture, the Swedish Nature Conservation Union, University of Lund, Swedish University of Agricultural Sciences and the Öresund's Region.

### Landscape character assessment

In Pålshj there is only one dominant ravine in its southernmost part close to the border with the housing areas in the north part of the town. The rest of the forest is chiefly flat and therefore it is shown instead the stand composition, its description, uses and local history. For a graphical overview see next figure.



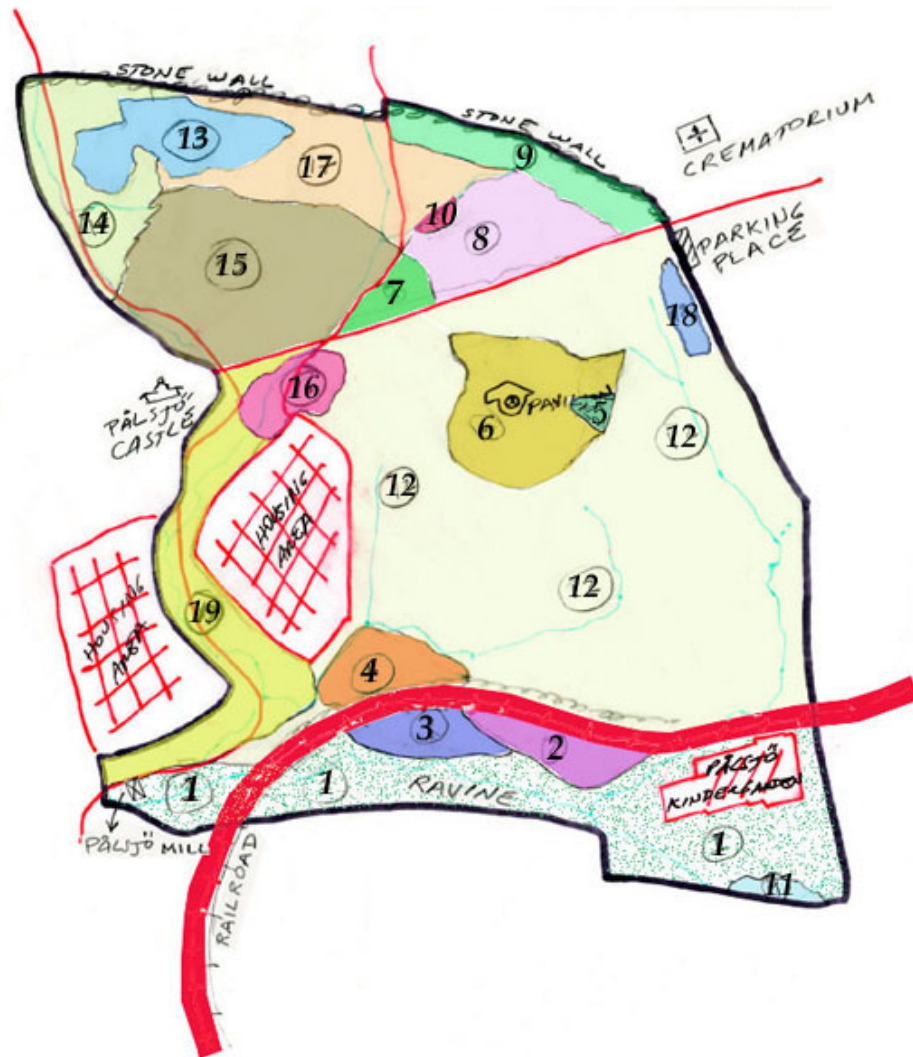


Figure 5. Tree composition stands, uses and history of Pålsjö forest.

***Pål sjö pavilion***



*Figure 6. Pål sjö pavilion designed by Sigurd Lewerens in 1914.*

The pavilion building is placed in the heart of the forest and it was designed by the well known architect Sigurd Lewerens in 1914. Until the 60's the Pavilion was used to special ceremonies like the celebration of midsummer. In the seventies it came a period of decadence, then it was decided to demolish. After a lot of discussions the building has been preserved until these days and protected as a building with historical value. During the last years it has been functioning as a café. Close to the *pavilion* there are a couple of brand new small constructions and a play ground for children.

***The stone wall***



*Figure 7. Stone wall in northern Pål sjö.*

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Located in the northern border of the forest we have a stone wall, a reminiscent from the grazing lands. This wall was separating the open pastures with the meadows and is going all the way from the west to the east and later to the south. Along the stonewall we have some hazel among other species forming the forest edge.

In a recent visit to the place, has Professor Roland Gustavsson, SLU, Alnarp, recognized the remnants of another less visible stonewall just following parallel and immediately to the south, remarking that this should be a cattle path or a *fägata* (in Swedish).

From the historical point of view this is one of the only remnants which have been maintained since the late 1700's when the area was probably converted as a whole into a production forest.

### *Pålsjö castle*



*Figure 8. Pålsjö castle built around 1680.*

From the beginning the castle has been part of the Pålsjö estate. It was built by the district judge Magnus Paulin around 1680 in an old farms place. Later, the family Follin owns the castle since 1834. The arable lands and the forest itself were sold to Helsingborg's municipality in 1908. The castle was sold later, in 1957. The castle garden is divided in 14 sections and every section is surrounded by hedges of fruits and roses. Recently the municipality announced that the castle is for sale, but it should be conserved as a historical building in connection to the forest. Contiguous to the right side of the castle there is a little building where the local skiing and orientation club (*SOK*) functions.

*The crematorium*



*Figure 9. Crematorium built in 1929.*

This is one of the very visible and unique buildings right outside the northeast part of Pålsjö forest. Ragnar Östberg, architect behind the Stockholm's town hall, designed the crematorium and it was built in 1929 just in the transition period between the classicism and the modernism.

*Pålsjö mill*



*Figure 10. Pålsjö mill built in 1824.*

This is a watermill that has its history back in the 17<sup>th</sup> century. It is placed in the south-western corner of the forest right under a couple of water ponds that provides the needed energy to the mill. It was built in 1824 and today it functions as a seasonal café where old postcards from Helsingborg are shown. The watermill still functions and during summer some few demonstrations are organized.

***The railway***



*Figure 11. Railway through Pålsjö forest opened in 1876.*

In 1876 the railway connecting Landskrona in the south of Helsingborg with Ängelholm in the north, was opened. Later on the west coast railway took over and functions so far. This is a monorail and the development of this is of primary importance for Pålsjö forest since it could affect the area. Politicians are extremely cautious about this development. No one would dare directly to affect this important area for all the population. Today there is only one bridge connecting the southern part of the forest with the north over the railway.

***Forest stand 1***



*Figure 12. Nuthatch (Sitta europaea) climbing an alder tree in Pålsjö.*

## Actual Situation and Evaluation of the Forest Management of Pål sjö

This is a mixed stand of beech (*Fagus sylvatica*), oak (*Quercus robur*) and especially alder (*Alnus glutinosa*) located in the southern ravine of Pål sjö forest and following the stream. Some few high ash trees (*Fraxinus excelsior*) are seen along the ravine. The alder trees find their best habitats in these wet areas. During late spring a huge stand of wood anemones (*Anemone nemorosa*) covers the lower under story of the forest, something that is general for almost the whole Pål sjö. This in fact is one of the biggest attractions to both locals and outsiders. This area today is left for free development where very few activities are done if any.

Most of the trees in this stand are 20-25 meters high, even the alder. In the east corner of the stand there is mainly alder with a nice population of hazel (*Corylus avellana*) and hawthorn (*Crataegus sp.*) growing in the under story and the middle layer. Some of the hazels are about 8 meters high. This corner is known as the Mecca for the birds. The solitary oaks are a bit over 100 years old and some of them 1, 2 m wide DBH (diameter at breast height). They are nice and wide trees, very different from those surviving close to the beech. In this stand there is some natural regeneration of mainly beech trees. It would be a great idea if a walking path would follow the stream and in that way use this high landscape element. Even though, some paths go around this area.

### **Forest stand 2**

This is mainly a beech stand. Some of the trees were destroyed by the *Gudrun* storm in the beginning of 2005. The remnants are trees of about 20-25 meters high. Here there is some nice and 20 meters high hornbeam (*Carpinus betulus*) and some oaks 25 high and 1 meter wide DBH. Because of the storm, today this stand is very open. Some of the fallen beech trees are 1, 25 meter wide DBH. The population of wood anemones is destroyed because of the storm effect, today with lots of dead wood all over the stand.

### **Forest stand 3**



Figure 13. Hornbeam (right) and beech trees branches.

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A clear and small stand dominated by hornbeam which develops in an irregular terrain at the side of the ravine. Some of the well grown hornbeams can be 20 meters high and 70 centimetres DBH. This is a difficult place to access because of the steep terrain. The border area with the railway is dominated by beech trees which are 20 meters high and about 60 centimetres DBH. These beech trees are separated by distances of 4-5 meters from each other.

### ***Forest stand 4***

This is an artificial created stand for regeneration of beech trees. The big trees have been thinned creating a large open area where the regeneration has started. Unfortunately there are almost no oaks and this show the beech dominance in the forest. The process started about ten years ago according to Samuelsson<sup>5</sup> and today the plants are about 1, 5 meter high and very tight in between.

### ***Forest stand 5***

This is a very little stand that is comprehended of mostly spruces (*Picea sp.*). They are indeed the only evergreen trees in the forest. It is said that this population of about 25 trees, 10-15 meter high, are maintained for some shy birds as owls. It is the idea of the actual management not to let regenerate these coniferous, so all small regenerating plants are taken away.

### ***Forest stand 6***



*Figure 14. Beeches stand without middle layer creating pillar hall scenery.*

This stand is developing around the central located *Pål sjö pavilion*. This area is mainly comprised of 25 meters high beech trees. They are well separated from each other and creating pillar hall scenery with long and clear stems without a middle layer in between. The soil is very compressed here because of the visitor's heavy impact and therefore no anemones are present.

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<sup>5</sup> Samuelsson, Ulf, personal interview 05/04/2006

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There are as well some few well developed and large oak trees and there is not at all a sign of regeneration.

### *Forest stand 7*

This forest stand is represented mainly by beech trees, growing not very tight and some of them 20-25 meters high. Here there is some beech natural regeneration and this is because the trees are separated at least 5 meters from each other. This area, as the most of the stands north of the paved road dividing Pål sjö, is more humid in comparison to the south. This is because the road is, in a way, blocking the natural drainage.

### *Forest stand 8*



*Figure 15. Beeches stand surrounded by a road, a bicycle and a motion track.*

This is a mixture stand of chiefly 20-25 meters high beech trees and some high oaks as well. Some of the beech trees in this stand are 1 meter wide DBH. Some of the oaks are 20 meters high and there is no natural regeneration. Here there is as well the pillar like scenery with long and clean stems and without a middle layer. The oaks are in bad shape and often being obstructed by the compact crown of the beech trees. This area is accessible for visitors only by its southern part where we have the walking, the cycling and the car driving tracks following parallel.

### *Forest stand 9*

This is an unusual stand where the oak is dominating the mixture composition with beech trees. Here we have some single oaks growing in lighter conditions and therefore well shaped. Some of them are almost 1 meter wide DBH and they reach easily 30 meters in height. The northeast border of the stand towards the open land is hard delimited by the presence of the stone wall.



**Forest stand 10**

A very wet and little stand comprehended of mainly alder trees, some of them 25 meters high and 50 centimetres wide DBH. It seems that only alder trees can survive this humid condition and under the canopy is found a middle layer of hazel. The under story in the late spring is covered with wood anemones. This is a less frequented stand by the visitors because of the humid terrain, but here there are a lot of birds.

**Forest stand 11**

In this stand located in the south eastern corner of Pål sjö we find some birch trees (*Betula patula*) which are about 15 meters high and about 35 centimetres wide DBH. These trees are bordering with a little green area covered with grass where people sometimes use to have some rest under the shadow of the birches. Here there are a couple of benches and tables as well for visitors.

**Forest stand 12**



Figure 16. Dead oak tree surrounded by dominant beeches.

This is the largest stand located in the southern part of the forest and around the Pavilion area. Here is found a mixture of more or less the same amount of beech trees and oaks. Here and there are found some hornbeam trees and mountain ash (*Sorbus aucuparia*) as well. Both, the beech and the oaks could reach 25 meters of height. Some of them are 1 meter wide DBH. The hornbeam could be 20 meters high and sometimes 70 centimetres wide DBH. This area is used especially by orientation groups when running cross-country. In some open places is found natural regeneration of beech, which forms a middle layer. The north eastern part of this large stand is covered mainly by old oaks while the south eastern part with younger oaks. The stands most common problem is the concurrence for light which affects enormously to oaks sometimes surviving with small crowns and sometimes already dead. Some other trees are affected by fungi and therefore as well in bad shape. In late spring most of the under story is covered by a huge

white mantle of wood anemone, creating a fantastic landscape view. This stand is humid enough because of the three water irrigation veins passing through.

### ***Forest stand 13***



*Figure 17. Young birch trees growing in the background.*

In this stand is found a large amount of young birch trees. The population of birches has taken over through natural regeneration after some strong storms at the end of the 1990's when lots of beech trees and oaks were destroyed and these areas were left open. Most of the birches are between 10-12 meters high and are very tight. Part of these areas are wet which is of benefit for the local stand. Right in the south border of this stand is found a 1, 5 meter paved path called *the nipple track* and is used almost only by new mothers and their baby children in prams.

### ***Forest stand 14***

This is mainly a scarce beech stand that has suffered strongly from the last storms. Here is found a lot of fallen huge beech trees which has left open areas where the new stands of birches are taking place. Some of the highest trees can be over 25 meters and around 1 meter wide DBH. Where the beeches are more stable is possible to find the pillar like landscapes where the middle layer is missing. In late spring these areas are covered with a nice under story of wood anemones. Following the west side of the stand is located a cycle, a pedestrian and a car track which makes possible all types of access. A stonewall is located in the northern border, and here is visible the lower and parallel wall that probably relates to a cattle path.

### ***Forest stand 15***

This stand is formed chiefly by long and pillar like beech trees. In general this is a more open stand where the beeches can be 25 meters high. This openness promotes the regeneration of beeches and therefore we find in this forest a more or less visible middle layer. Late in the spring the area is covered by a white mantle of wood anemones. This stand is surrounded in its west and south by a cycling, a pedestrian and a car track.

***Forest stand 16***

Again this is a small and wet stand comprehended of mainly alder and few oaks. Some of the alders can reach 20 meters in height. Just as the other stands this is not very frequented by people because it is too wet. This little area is placed right in front of the Pålsjö castle, on the other side of the road.

***Forest stand 17***

Located in the northern part of Pålsjö forest this stand is composed of both large and wide beech trees and oaks. These trees can reach 25 meters in height and 1 meter wide DBH. It is important to mention that some of the oaks are solitary trees and therefore with a broad canopy starting from almost the base. The same case can be told about the beech trees. The stand has suffered in the last years of the strong storms which have destroyed some huge trees nowadays lying in situ for benefit of the biodiversity. Another part of the destroyed material has been gathered along the car track for taking it away. This causes a dramatic view within this area. The northern border is represented by the stone wall heading west-east.

***Forest stand 18***

This is a nice and priced small stand of hornbeam which is regenerating fine in Pålsjö forest. Some of the largest trees can be 20 meters high and about 70 centimetres wide DBH. Sometimes is possible to find here hornbeams and beech trees and hornbeams with oaks growing together and very tight, like hugging each other. The stand is light, well structured and is showing a middle layer with mainly young hornbeams growing and some few mountain ashes towards the forest edges. The area is enough humid and stable. In late spring there are lots of wood anemones forming the under storey.

***Forest stand 19***



*Figure 18. Dead beech trees close to the housing area in the west side of Pålsjö.*

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Here we have a stand represented mostly of beech trees. This is a dark area because the trees are too tight and in places where some oaks are found they are in bad shape with almost no canopy or already dead. The southwest border of this stand is a road and a housing area, the only one getting inside the forest. Some of the beeches reach 20 meters in height. Here it is possible to find a dark pillar alley inside missing both the middle layer and the under story. Inside of the southwest edge of the stand is found a hardened path for pedestrians. The area is used especially by cross-country runners.

### Interviews in Pålsjö

Additional information to the practical interviews is presented in the following paragraphs. The personal feelings and thoughts of the interviewed managers in Pålsjö were added to the open maps as shown on the next figure. Comments and critics to the management are done as well, however this is taken deeply in chapter Discussions. Complete questionnaires and answers, and maps are displayed in the Appendix.

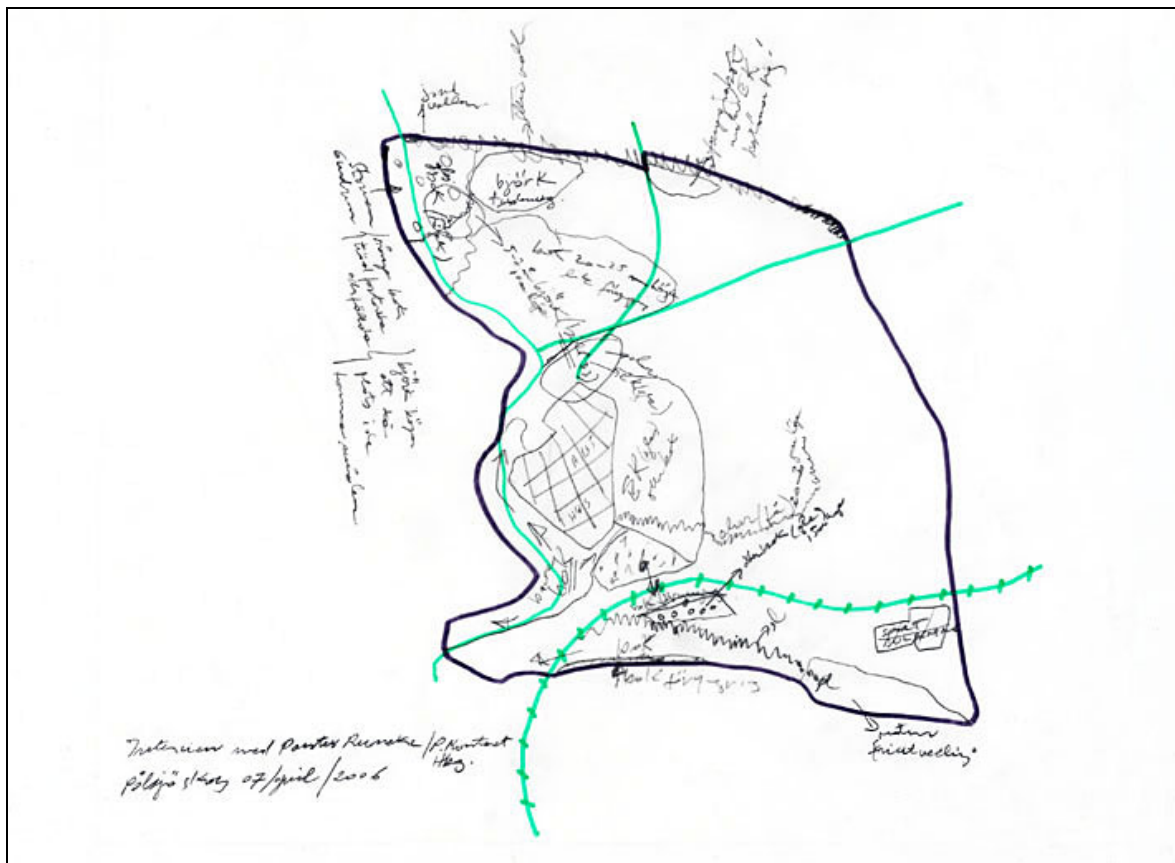


Figure 19. Open map used to add information during the interviews in Pålsjö.

### **Interview with Widar Narvelo, Helsingborg's building bureau, 04/04/2006**

Widar Narvelo is an ecologist concerned mainly in Pålsjö forest nature and ecosystem. He had for this meeting a short paper describing the history, development and management of this area. I got it as part of his information. In the north part of Pålsjö, Widar shows with special interest the stone wall, which is a historical remnant of a period of transition from grazing to the actual forest. A description of a *beautiful young forest* from the middle of the 18<sup>th</sup> century is used for

this period. In the northern part there is a small water pond with potential for biodiversity. This is located inside a young stand of birch trees.



Figure 20. Widar Narvelo close to a beech trunk.

In the southern part of Pål sjö, Widar shows the difference in age among the oak trees. He defines as an old oak stand mixed with beech trees being present in the east side of the forest while younger oak trees are mixed with beeches in the south eastern part of Pål sjö. He shows a new grown stand with small beech trees in an open place. This is partly natural regeneration and is very tight.

Later on we visit the southernmost part of Pål sjö crossing the only and central bridge over the railway. Here is located a deep ravine which is covered with plenty of fallen trees and destroyed material after the Gudrun storm. Widar points out that the area is left for *free development* and that a little or very little is done to improve the place. He emphasizes the importance both for the landscape and the visitors, the presence of this natural ravine with a small stream in its bottom. The area has been affected a lot after the storm, and everywhere it is possible to observe destroyed trees. For Widar is important to let nature continue with its development. In the mean time he thinks that the demand and pressure from the visitors for the area is too high. He mentions that in Sweden, the province of Scania has less area for recreation. *See appendix 1 and 2 for details.*

*My own comments* in regard to the free development management is that this is wrong because Pål sjö is dedicated to *recreation* and the consequences of leaving the forest management to nature can be very dangerous to the daily visitors. It is possible to see many dead trees with hanging branches along the motion tracks representing a continuous threat to all. This is a matter of both personal security and liability that should be changed as soon as possible.

*Interview with Ulf Samuelsson, ENTEK, 05/04/2006*

Ulf is working for the local contractor ENTEK and he is directing the practical activities in Pål sjö. When we meet, he shows me first a nice hornbeam stand close to the parking area in the eastern side of Pål sjö. He explains and points out the natural regeneration of some of these 20 meters high trees. We find as well some few cases where both hornbeams and beech trees were growing together and sharing light, water and nutrients. We continue a bit to the south and Ulf is showing very wet areas where indeed oak trees were not developing very well. He explains that for years ago it was used to do maintenance to the ditches system in order to favour drainage. As it is today, with the nature like management, there is no maintenance to the system, something he was really worried about.



*Figure 21. Ulf Samuelsson and hornbeam trunks.*

He was as well pointing out that an old stand of oaks were growing around the hornbeams in the eastern part of the forest while another younger oak stand were growing in the southeast. Both populations were mixed with beech trees.

Later on we walked further south, close to the bridge over the railway. Ulf showed here the beech regeneration project. He explains that this started about a decade ago. They used this partly open area and opened more by thinning in order to promote regeneration of both oak and beech trees. They fenced the area and even used pigs to prepare the soil and help the process. Today, there are beeches everywhere but unfortunately almost no oaks. Apparently the conditions were not favourable to oak regeneration and they decided to plant some. We left this place and headed west, close to the housing areas. There, Ulf was pointing out the press for creating more access paths for recreation. He was worried because more and more areas were converted into hard surfaces to benefit users and these hard areas blocked the water and compact the soils. Finally he emphasized the environmental impacts in southwest Pål sjö caused by the housing areas which contributed to more soil acidification.

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Ulf wanted to be able to do more management in order to create different forest layers in Pål sjö and wished to develop a more concise future management plan to be followed. *See appendix 3 and 4 for details.*

*My personal comments are positive for the benefits to be obtained with a selective management, creating more open areas to favour regeneration. I think the oaks should be planted in Pål sjö in order to grow simultaneously with the beeches. This new plantations should be followed constantly and replaced if necessary. Even fencing should be considered in order to protect the growing oaks. The water ditches should be maintained regularly in Pål sjö to benefit drainage.*

### ***Interview with Lars Johansson, Helsingborg's park department, 06/04/2006***

Lars works for the local park department and is responsible for the operational management and the administration of the area. Around the parking area in the east side of Pål sjö, he pointed out some of the small mountain ash trees in the open forest edges. We saw as well the stand of hornbeams growing around this place. In the south he shows a small stand with spruces, in fact the only within Pål sjö and maintained to protect some species of shy birds like owls. Then we head even southern to find out a huge mixture between beech trees and oaks. He mentions that the percentage of mixture is fifty/fifty.



*Figure 22. Lars Johansson and a water ditch, Pål sjö.*

After crossing the bridge over the railway we decided to follow the railway. There we saw wide and high hornbeam trees standing alone after a thinning around. It was explained that during the last storms the electric cables were injured by falling trees from the forest edges. These problems obligated the Swedish Railway system to clear up the edges, removing even small bushes all along the railway. Looking behind us, to the south, and inside the ravine, Lars talked about the free development of this special area. He pointed out that no activities or management was done here. However some material like dead wood, after the storm, was gathered this year in some spots in order to avoid the whole area being affected. There were standing some injured trees like

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beech and some oaks. It was discussed at the same time that the housing areas contiguous to the ravine, and the one inside the forest in the west, were pressing and polluting Pål sjö.

We ended in the southeast corner of the forest where the alder stand grows. They were starting to flower just like the hazel living in the middle layer. Lars was very positive to recreation and making Pål sjö both more accessible and safer to visitors. *See appendix 5 and 6 for details.*

*My comments towards opening access and making safer the forest are positive; however the actions to reach this balance should be done immediately. As it is now, most of the forest stands are even aged and this means that no transition or middle layer is found here. These stands have no future for Pål sjö and no future either for the users.*

### ***Interview with Pontus Runeke, Helsingborg's park department, 07/04/2006***

Pontus works for the local park department and has almost the same responsibilities as Lars Johansson. We met as well in the parking area and decided to walk north. After few meters in our way, we found a building area, a grove, connected to the crematorium. The huge metal fence right inside the forest dividing the two areas was breaking the aesthetics of the place.

Right in the northern part of the forest, Pontus showed some well developed beeches and oaks. Some of them had the lonely trees character, less experienced in the south. Some places as well had the pillar alley landscape and Pontus mentioned that some type of regeneration should be promoted in these areas to establish a younger layer in the forest. Unfortunately he thought that too little or nothing is being done to accelerate this activity.



*Figure 23. Pontus Runeke (left) and the author during the interview.*

When we head to the west, a considerable young stand of birch trees is found, close to the northwest corner of Pål sjö. He describes this stand as ten years old and just taking place where beech and oak trees has been destroyed by the storms. Indeed this area of the forest is totally



exposed and therefore the damage is greater here. Pontus mentions that the birch trees are only provisional guests, meaning that they do not stay too long in comparison to beech trees for example. This stand is very dense and some of the small trees are today seven meters high. He points out as well that the beech stand in the corner is very open today because of the storms. It is almost possible to predict that the birches will continue spreading in this area.

Pontus has a lot of interest for creating regeneration within Pålsjö and to adapt the forest to safer recreation activities. He would like to be able to act more than to leave all the management to nature. *See appendix 7 and figure 19 for details.*

*My comments in regards to the natural regeneration of birch trees are that they should be combined with oaks in order to have a more varied mixture of species. In the mean time oaks will hopefully stay in place much longer than birches. Partial fencing should be considered to protect the new forest stands.*

### **SWOT analysis of Pålsjö forest**

The main aim with this analysis is to get a clearer picture of the actual management, possibilities and problems of Pålsjö in order to develop and improve a future management. In the next paragraphs are gathered the analyses of the four Pålsjö managers.

#### **Strengths**

##### *Historical*

- Very well known forest name.

##### *Biological*

- The huge ecological conditions.

##### *Social*

- Close to the city. Close to people.

##### *Recreational*

- The easy accessibility. Few towns have this resource
- The forest production of timber, improving health and recreation.

##### *Aesthetical*

- The forest is friendly to get into thanks to its pillar tree composition with large trunks and high crowns.
- The forest has old trees which gives it its character.

##### *Political*

- Politicians are very aware of the forest values and no one would dare exposing or risking Pålsjö to negative impacts.

#### **Weaknesses**

##### *Development*

- The big interest for the railway.

##### *Recreational*

- The area is heavily used.
- The area is very limited in relationship to the users.
- Huge accessibility pressure: paths, corridors, hard paved areas.

##### *Biological*

- The tree's age is high and this is a problem.
- There are not much of young trees.

### *Aesthetical*

- Most of the trees are even aged.

### *Security*

- Many trees are in bad shape.
- Some of the injured old oaks are a risk.

## **Opportunities**

### *Biological*

- Strengthening the trees and the forests areas.

### *Development*

- Possibility to protect Pålsjö forest.
- A good possibility for development through regeneration.

### *Aesthetical*

- Create different types of forest.

### *Historical*

- To maintain the forest.

## **Threats**

### *Environmental*

- The soil acidification- very low pH-
- The climatic changes.

### *Recreational*

- Forest exploitation as a park. The eastern Pålsjö forest is heavily used.
- Too much recreation.
- The hard use of the forest.

### *Urban development*

- The railway development, air pollution and no management plans.

## **Interviews and SWOT analysis of the reference forests**

Just as in the case of Pålsjö forest, information to the practical interviews and their SWOT analyses of Rosendal oak grove and Småryd forest are presented in the following paragraphs. Some history and place description are presented as well. Comments are done within the Discussions chapter. Detailed questionnaires and answers are included in the appendix.

### ***Interview with Baron Gerard Bennet, Rosendal's oak grove owner, 19/04/2006***

We met first at the castle with Baron Gerard Bennet and his son Tomas. There, I was invited to see some old maps and photographs of the estate. The Baron is 87 years old and his Spanish is fluent. The castle was built by Anders Bille in 1615 and is today one of the best preserved buildings of the renaissance period in Scania. In 1753, just after the countess Ascheberg's death, her daughter inherited the estate. She married Wilhelm Bennet, who had Scottish roots, and since then the property has been in possession of the Bennet.

The estate is located about 10 km northeast from Helsingborg. Today it has about 800 hectares and since 2005 the baron has agreed with the forest administration, *Skogsstyrelsen*, for a fifty years developing program. The forest area is only 70 hectares and 15 of them are represented by the oak grove. The type of management in the grove is nature oriented. When we are here, among free growing mighty oaks, Tomas and Gerard will show me the open areas around the trees and talk about the grazing with heifers. They point out that in the summer these animals

will keep short the growing vegetation and at the same time they will incorporate organic matter to the soil. It has been like that all the time they say pointing some 30 meters high trees and 1,7 meters wide DBH. Tomas guides me inside of a fenced area in the western side of the grove and shows me the oaks regeneration in this place. There was indeed a mixture of small trees of both oak and ash. In the humid areas there was lots of growing material. I realize that the groundwater level in the general grove was deeper than in Pålshö and Småryd forests.



Figure 24. Baron Gerard Bennet (right) and Tomas Bennet entering an oak regeneration area, Rosendal.

Both the baron and his son were concerned in the balance between the production and the biodiversity. They talked and showed how the new motorway has affected going through the grove. They knew as well that some birds and mammals were decreasing and that a proper management was necessary. At the same time the baron thought it was a pleasure to be able to protect the oak grove as part of the family and as a historical place. I was kindly invited to follow the development in the different seasons. *See appendix 8 for details.*

### ***SWOT analysis of Rosendal's oak grove***

#### **Strengths**

##### *Historical*

- Long historical tradition. The oak grove exists before the middle of 17<sup>th</sup> century.

##### *Aesthetical*

- Different types of management: nature oriented, grazing, production.

#### **Weaknesses**

##### *Size*

- The forest area is only 70 hectares of which 15 are oak grove.

##### *Aesthetical*

- The forest area is divided in different sub areas.

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### *Ecological*

- The oak grove is divided by the E4 motorway.

### **Opportunities**

#### *Historical*

- To be maintained as it is: forest and grazing land.

#### *Development*

- To strengthen the grove through the agreement with the national forest administration.

### **Threats**

#### *Environmental*

- The traffic projects.
- The air, soil, and water pollution.



*Figure 25. Huge trees and grazing areas within Rosendal's oak grove.*

### ***Interview at Småryd with Charlotte Gabrielsson, Hbg's building bureau, 02/05/2006***

The last person I interviewed during this project was Charlotte Gabrielsson. She is an ecologist working for the local building bureau and for the meeting she brought a development plan for the area and some soil maps. I have got kindly all this material as part of our meeting. Charlotte shows me the borders of the brand new nature reserve. The area today is represented by 31 hectares and it was created in September 2005. We walk inside of a healthy and light mixture and well established stand of young ashes and linden. We continue west and come to a place where we can see a little pond and where some birches, beech trees and even oaks are reflected. Charlotte explains about the very superficial and sensible groundwater from Småryd. She is concerned in managing the reserve cautiously because all the activities, light or severe, are affecting the groundwater. Later on we head north and we come to a fenced stand which is used for regeneration. The place is crowded by birches, but inside there are some other species of deciduous trees. Some oaks have been planted around this place.



Figure 26. Charlotte Gabrielsson at Småryd forest.

In the northwest corner of the reserve some people from ENTEK, the local contractor, are working with a stand of spruces. She mentions that the idea in the future is to convert all the coniferous into noble and deciduous forests. Charlotte is interested in nature for recreation and explains that the aim of the actual management is to reach both with the local and national ecological aims, meaning living forests, rich green landscapes and more biodiversity. She comments, looking at the reserve map, that hopefully in the near future the municipality of Helsingborg could buy the surrounding areas in order to enlarge the area and tells me that in fact, some of those areas conserve even higher ecological values than the reserve itself.

Finally we head outside of the forest to get into a tiny piece of land, less than a hectare, which is one of the real pearls of the reserve just because here remains history in the form of hay meadows. This is indeed a beautiful restored landscape with forest edges and different vertical layers showing the dynamics of this small place. Here are seen yellow anemones in the under story and hazel among other bushes in the forest edges. The small and young forest stand was covered mainly with beech trees, birch, oak and hornbeam. *See appendix 9 for details.*

Småryd forest is located 5 km north of Helsingborg and according to maps from the 18<sup>th</sup> century it has been an open area used for grazing and covered by meadows and trees like oak and aspen. Today, the nature oriented management is functioning well for this *nature reserve area*.

*SWOT analysis of Småryd forest*

**Strengths**

*Historical*

- Historical place with haymaking meadows remnants.

*Ecological*

- The high moving groundwater which is vulnerable to changes.

*Aesthetical*

- The presence of small scaled landscapes.

**Weaknesses**

*Environmental*

- The motorway 111 and its noise.

**Opportunities**

*Development*

- Today it is used as a recreational place. It should have a better future.
- Strength the reserve by means of buying the neighbour forests in order to enlarge the area.

**Threats**

*Urban development*

- The urban development of Helsingborg.

*Agriculture*

- Today 90% of the municipality is agricultural lands.

*Environmental*

- The railway.



*Figure 27. Forest, forest edge, and meadow in Småryd's northeast side.*

### Comparison between Pålssjö forest and the references

Comparing the three different SWOT analyses it is possible to clearly determine some similar situations and some different as well regarding the *management* for Pålssjö forest and the references. This will be discussed in the next chapter in order to interpret these results.

## V. DISCUSSION OF RESULTS

### Stakeholders mapping

*The stakeholders mapping* at Pålssjö forest shows that a lot of people is today more than before using the area. The activities here are so diversified going from bird watching to horse riding. This shows the enormous responsibility the managers should take for both the forest and its users. Looking at the *free development* management in the southernmost part of the area it is definitely possible to open a discussion if this alternative gives security for visitors since lots of old trees in bad shape are just left to nature. In a larger perspective this means that in public forests, like Pålssjö, we must adjust the management to both the forest's and the user's safety.

### The landscape character assessment

*The landscape character assessment* shows two main types of values at Pålssjö. The first related to history like the stone wall, Pålssjö castle, the railway, Pålssjö pavilion, Pålssjö mill among others that should be preserved and lifted as part of the history and culture of Helsingborg. Both Berleant (1992) and Larsen (1996) take into account and strength the social and cultural aspects related to stakeholders. In a wider perspective this shows that in green areas not only the trees are important but all aspects related to history and culture.

The second value in Pålssjö is of course its nature represented in the forests landscapes with trees and plants. As taken from the assessment we have almost twenty smaller stand variations. This could be interpreted very fast as a rich *forest landscape*. Indeed there are trees, plants, birds and landscapes typical for some specific areas. The ravine inside the southern part of the forest for instance, is unique. But we can take as well more carefully some more central areas in Pålssjö and notice that some of them could be different. From the *aesthetical point of view*, the stand 12 as an example, with many oak trees with long clean trunks and very small crowns which are surviving among crowded beech trees, could be improved. The same stand, which is the biggest and more central in Pålssjö, could be developed from the *dynamical point of view* by means of creating a more open spaces favouring regeneration and creating a middle layer which is crucial for the survival of a forest. In this regard Gustavsson (1994) takes in consideration a clear description of Pålssjö from a 1741 document: "*a young beautiful forest*". This means that in wider perspectives green areas should have a *balance in between* their landscapes aesthetics and their dynamics.

### The interviews

Analyzing *the interviews* of Pålssjö, Småryd and Rosendal's oak grove it is possible to find out that the management in the two first are nature oriented and even a part of Pålssjö is for free development whereas in Rosendal's oak grove is a combination of oriented management with annual grazing. Here at the grove it is going on a rotation of regeneration by means of fencing different areas with very good results. It is possible then to compare the different managements and *the stability* of the oak grove and Pålssjö forest. At this point it is essential to take up Mårten Sjöbeck's description of Pålssjö forest being in its last stage and getting old too premature. This is in 1941 where beech trees were taking over. On the other hand Rosendal's oak grove is represented already in maps in the middle of 18<sup>th</sup> century and still is in great condition

maintaining both its character and stability. This shows that *oriented managements* can produce stable forests maintaining their character and healthiness. In a bigger scale and in public forest areas both the people and the forests can be benefited of an oriented management. This could be implemented in Pålshjöö in order to benefit a balance between regeneration of oaks, hornbeam, alder and the more pioneers beech and birch trees. At the same time the future of the forest will be granted with a new generation while dynamics and aesthetics are improved with a middle layer. Småryd shows as well a beautiful forest structure close to its small meadow in the northeast, which *has been restored* and annually the hay is being cut and some thinning activities occur if needed, according to Gabrielsson<sup>6</sup> and Bengtsson<sup>7</sup>.

### SWOT analysis

From the *SWOT analysis* of Pålshjöö, Småryd and Rosendal oak grove we can see that all have historical and biodiversity values as *strengths* while Pålshjöö is the forest with most recreational approach and facilities being placed on the north part of Helsingborg. On the contrary, if we take account of the *weaknesses*, all the three forests are affected by motorways and in the case of Pålshjöö, even the railway. Besides the aesthetical and pollution considerations, this railway could be described as a living element when the trains are circulating and this could be approached as part of the landscape by means of clearing some few parts along its way where visibility is not possible. In this case we are converting a negative situation into a positive alternative in benefit of the users. Other serious weaknesses that Pålshjöö suffers are its even aged old trees and the constant pressure by the users. In the first case, the old trees in bad shape within recreational areas demand security issues in benefit of the stakeholders. From the biodiversity point of view, even aged trees are not within the *composition/ structure / function cycle* which is in balance according to Heilmann-Clausen (2006). In the second case, the forest's users pressure demands as well security issues in benefit to the forest. This is a situation demanding reciprocal balance, something that Mårten Sjöbeck in 1941 was sceptical saying that the forest will not maintain its beauty while being open for the public. However this is a challenge for managers today.

Analyzing the *opportunities* of Pålshjöö and the reference forests, it is clear that all managers, regardless the type of management, would like to have some type of improvement in development. This is crucial and the most valuable opportunity because in that case it is possible to improve strategies for the future. Regarding Pålshjöö forest, it will be necessary to gather the managers in an open debate and discuss, agreed and bind up the future aim and development strategies. This will be a process that could follow the *communication challenge staircase: disseminate knowledge, affect attitudes, give raise to intention and change behaviour*, explained by Persson<sup>8</sup>. This is a great *opportunity to strength and experience* the recreational, biological, aesthetical and safety issues in order to create a stronger, more dynamic and safer forest for future generations as stressed by Gustavsson (2004). The *environmental threats* are typical for Pålshjöö, Småryd and Rosendal's oak grove and this shows a common need to develop better strategies to overcome this negative situation. Besides the environment, Pålshjöö has more impact from recreation and the urban development because of its status and geographical location. This needs immediate actions in order to protect the forest, its resources and, its cultural and historical aspects. In a broader perspective this shows that regardless the status of a forest and its management, there is always an interest for development or improvement. It is at this point, Urban Forestry should be able to give genuine alternatives and management plans to fulfil this interest in order to avoid faked situations which sometimes are accepted by the public as pointed out by Gustavsson & Peterson (2003).

<sup>6</sup> Gabrielsson, Charlotte, personal interview 02/05/2006

<sup>7</sup> Bengtsson, Fredrik, management plan for Småryd nature reserve 2005, Hbg's building bureau.

<sup>8</sup> Persson, Bengt, lecture over *Communication aspects of the field of UFUG* at KVL, 10/10/2005



### **The methods and the results**

The *landscape character assessment* provided the stand structure of the forest and its uses. Considering the *interview method* with the help of simple maps used for this project, it should be stressed that the contact and the communication achieved has been personal and direct. Indeed the use of simple maps has been a real bridge between the managers and me. Before this tool, I have considered the use of a sound recorder for the interviews, but discarded because of the stress atmosphere and its lack of efficiency in the field work. It would have been more accurate in the case of Småryd forest to interview several managers, but unfortunately the short time did not permit. However, for this case, it was chosen the local building bureau which has created the management plan for this reserve. Regarding Rosendal's oak grove, I had contacted the owner and the only manager, because the national forest administration comes into account only from the last year, 2005. In any case I had talked to this administration and got some facts via telephone. The *comparison method* was realistic because the areas are located and administrated within the same municipality of Helsingborg. The different managers and managements contributed with several ideas that could be used to improve Pålsjö forest. The use of these methods has helped to reach my objectives and give answers to my questions regarding Pålsjö forest and its actual situation and management.

## VI. CONCLUSIONS

After the use of the different methods in this work and the analysis of the results, it is possible to conclude and visualize the following:

Pålsjö today is an even aged forest represented mainly with old trees. Considering the future as a forest, it is confirmed the situation that Pålsjö is in its final stage, and if we do nothing, it will die itself as Mårten Sjöbeck has stated already in 1941. Consequently, actions are to be taken in order to find a management plan to strength the stands and regenerate most of them creating a new generation of trees that will take over.

Regarding the species composition, the most dominant species is beech trees followed by oaks, hornbeam and alder. However, the population of oaks is being reduced in several places, in part, because of the competition for light and nutrients. This situation could be improved by creating a more balanced situation through forest management. Future monocultures will only be vulnerable to selective diseases like the Dutch elm disease, and today the ash disease.

Through the interviews and communication it was concluded that managers have a lot to share through their experiences, thoughts and interests. This invaluable knowledge and experience needs to be canalized and discussed in order to create more specific strategies for Pålsjö forest. Not all of them agree in a certain management however all would like to have improvements. The present document work should be presented to them in order to discuss and visualize possible alternatives.

From the interviews as well it was pointed out the use and the development of Pålsjö as a recreational area. This situation demands a special management for both the security and liability of the visitors and the forest itself in the short and the long term time perspective. According to the Statistic Central Bureau the green areas close and around 5 Km of the towns of Helsingborg and Malmö are very scarce. This emphasizes even more the need of a genuine and well documented development plan.

## Actual Situation and Evaluation of the Forest Management of Pål sjö

From the comparison among Pål sjö forest, Småryd forest and Rosendal's oak grove it is possible to conclude that Rosendal has most stable stands through a dedicated management of their grove promoting regeneration and using grazing. Småryd has a great example; however a very small area, of a diversified, multilayered and dynamic forest stand conceived through restoration and annual management. This shows that an oriented management can create stable and dynamic forests. Consequently it should be necessary to find out oriented management alternatives for Pål sjö in the near future.

After the thinning activities from the early 1940's in Pål sjö forest, new beech, oak, and hornbeam trees with wide trunks and crowns can be seen, points out Professor Roland Gustavsson. These specimens should be highlighted when discussing future thinning in order to create contrast between tight and long trees and more open and wider solitary trees within the forest.

Aesthetics has never been mentioned or taken into account as a priority by the interviewed managers, however it has been present in the back of their heads when describing and taking as a reference the landscape of the province of Scania. It should be stressed in the future the relationship and dynamics of aesthetics in Pål sjö forest.

## VII. REFERENCES

- Berleant, A. (2004). *Rethinking Aesthetics*. Ashgate. Burlington. pp. 1-9 and 13-19.
- Billing, S. & M. (1999). *Grön Stad. Helsingborgs parker i tid och rum*. Helsingborgs Dagblad förlag, Helsingborg. pp. 103-107.
- Carlquist, G., & Carlsson, J. (1952). *Svenska upplagsbok*. Second edition. vol. 23. p. 611.
- Gustavsson, R. (2004). *Exploring woodland design: designing with complexity and dynamics- woodland types, their dynamic architecture and establishment*. pp. 211-213. In: Dunnett, N. & Hitchmough, J. (eds) *The Dynamic Landscape, Design, Ecology and Management of Naturalistic Urban Planting*. Spon Press. London.
- Gustavsson, R. & Ingelög, T. (1994). *Det nya Landskapet. Kunskaper och idéer om naturvård, skogsodling och planering i kulturbygd*. Skogsstyrelsen förlag, Jönköping. p. 73.
- Gustavsson, R. & Peterson, A. (2003). *Authenticity in landscape conservation and management: the importance of the local context*. In: Palang, H. & Fry, G. 2003. *Landscape Interfaces Book*, Kluwer academic publishers. Dordrecht.
- Heilmann-Clausen, J. (2006). *Naturnær skovdrift og biodiversitet*. In: Larsen, J. B. (ed) *Naturnær skovdrift*. Dansk Skovforening, Copenhagen, Denmark. pp. 78-84.
- Helsingborg, Turist- och informationskarta. (2001). Kompletteringsutgåva, Stadsbyggnadskontoret, Helsingborg.
- Konijnendijk, C. (2005). *Urban forestry in Europe: a comparative study of concepts, policies and planning for forest conservation, management and development in and around major European cities*. In: Konijnendijk et al. (eds) *Urban forests and trees*. Springer-Verlag. The Netherlands. pp. 399-409.
- Kunnaskari, M. (2004). Series of lectures: *The signs of restoration in the landscape*. Studia generalia semiotica.
- Larsen, S.E. (1996). *Naturen er ligeglad. Naturoppfatelser i kulturel sammenheng*. In: Larsen, J. B. (ed) *Naturnær skovdrift*. Dansk Skovforening, Copenhagen, Denmark. pp. 363-368.
- Malmberg, T. (1947). *Pålsjö skog – en fågelskog I staden*. In: Hanström, B. & Curry-Lindahl, K. (eds) *Natur i Skåne*. Bokförlaget Svensk Natur, Göteborg. pp. 96-101.
- Sahlgren, J. (1925). *Hälsingborgstraktens ortnamn*. In: Bååt. L. (ed) *Helsingborgs historia*. vol.1. p.138.
- SGU. (1974). *Översiktlig Jordartskarta*. Sveriges geologiska undersökning. Sweden.
- Skånska rekognosceringskarta. (1820). Lantmäteriet, Gävle. Upplaga 1986.
- Stenberg, L. & Mossberg, B. (2003). *Den nya nordiska floran*. Wahlström & Widstrand, Stockholm.

Tyrväinen et al. (2005). *Information for desition making. NeighbourWoods state of the art report*. In: Konijnendijk et al. (eds) *Urban forests and trees*. Springer-Verlag. The Netherlands. pp. 399-409.

**Non-printed material**

SCB, Statistic Central Bureau, (2003). Available online on [http://www.scb.se/templates/tableOrChart\\_21123.asp](http://www.scb.se/templates/tableOrChart_21123.asp)

SCB, Statistic Central Bureau, (2006). Available online on [http://www.scb.se/templates/tableOrChart\\_159277.asp](http://www.scb.se/templates/tableOrChart_159277.asp)

Swanwick, C. (2002). *Landscape Character Assessment, Guidance for England and Scotland*. Scottish Natural Heritage & the Countryside Agency. Available online on [http://www.ccnetwork.org.uk/ca/LCA\\_Guidance.pdf](http://www.ccnetwork.org.uk/ca/LCA_Guidance.pdf).

## VIII. APPENDIX

### PÅLSJÖ FOREST

Interview with: *Widar Narvelo / Helsingborg's building bureau.*

Date: *04 April 2006*

#### Personal questions

1. What's your position in your job and how long experience do you have?  
*a. Municipality's ecologist / Master in Natural Sciences. Employed since 1983.*
2. What are your work activities in Pålsjö forest?  
*a. Dealing with natural plans.*

#### SWOT analysis (with help of Pålsjö map)

3. Pålsjö's strengths as forest? Future projects...  
*a. The huge ecological conditions. The forest production of timber, improving health and recreation.*
4. Pålsjö's weaknesses as forest?  
*a. The big interest for the railway. The area is hard used. The area is very limited in relationship to the users.*
5. Future opportunities /alternatives for Pålsjö forest?  
*a. Strengthening the trees and the forests areas.*
6. Future threats against Pålsjö forest? Motorways, railways, housing areas...  
*a. The soil acidification- very low pH-, the climatic changes.*

#### Activities and forest information

7. What is the aim with the actual efforts and forest management?  
*a. Multiple use plan, coupe with the different interests.*
8. How big is Pålsjö forest?  
*a. Not very sure. Something in between 50-60 hectares.*

#### Comments

9. How will you see Pålsjö forest in the future?  
*a. With a more dense vegetation specially lower bushes like: (Swedish names): Euonymus sp., Viburnum opalus, Prunus padus, Corylus avellana.*
10. Do you know about Helsingborg's green belt project which started 1966?  
*a. A green project started in 1989 and became stronger only after 1996.*
11. How has Pålsjö forest developed in time according to you?  
*a. Post glacial period: tundra. Stone Age, a warmer period with oak mixed forests and noble tree species. Bronze Age, colder period where the beech trees appear. Iron Age with agriculture and exploitation. Lately, rational exploitation of meadows and pasture lands.*

## Actual Situation and Evaluation of the Forest Management of Pålsjö

12. What do you think about that development?

*a. The European noble tree character has disappeared. The succession has broken.*

13. What does imply for you the natural management that Pålsjö had so far?

*a. The main aspects are nature care, recreation and saving the actual beech, oak and alder stands. Tree variation shall be kept and regeneration will be left mainly to nature.*

14. Do you think the biodiversity has changed? How?

*a. Yes, it definitely has changed by means of the forest changes, recreation impact, the higher amount of users like cyclists, ornithologists, runners, dog keepers, riders, hunters and so on.*

15. Do you think it is necessary another management for the forest?

*a. Today the management is fully or almost fully natural. We should help nature with regeneration where it is critical.*

16. Biodiversity, Recreation, Aesthetics...what is most important for you?

*a. Biodiversity and recreation are connected and the aim should be to create balance in between them. The aesthetical look is something personal. Which is nice for one it is not for another.*

17. Have you consider another different tree/plant composition for Pålsjö?

I forgot to ask this question.

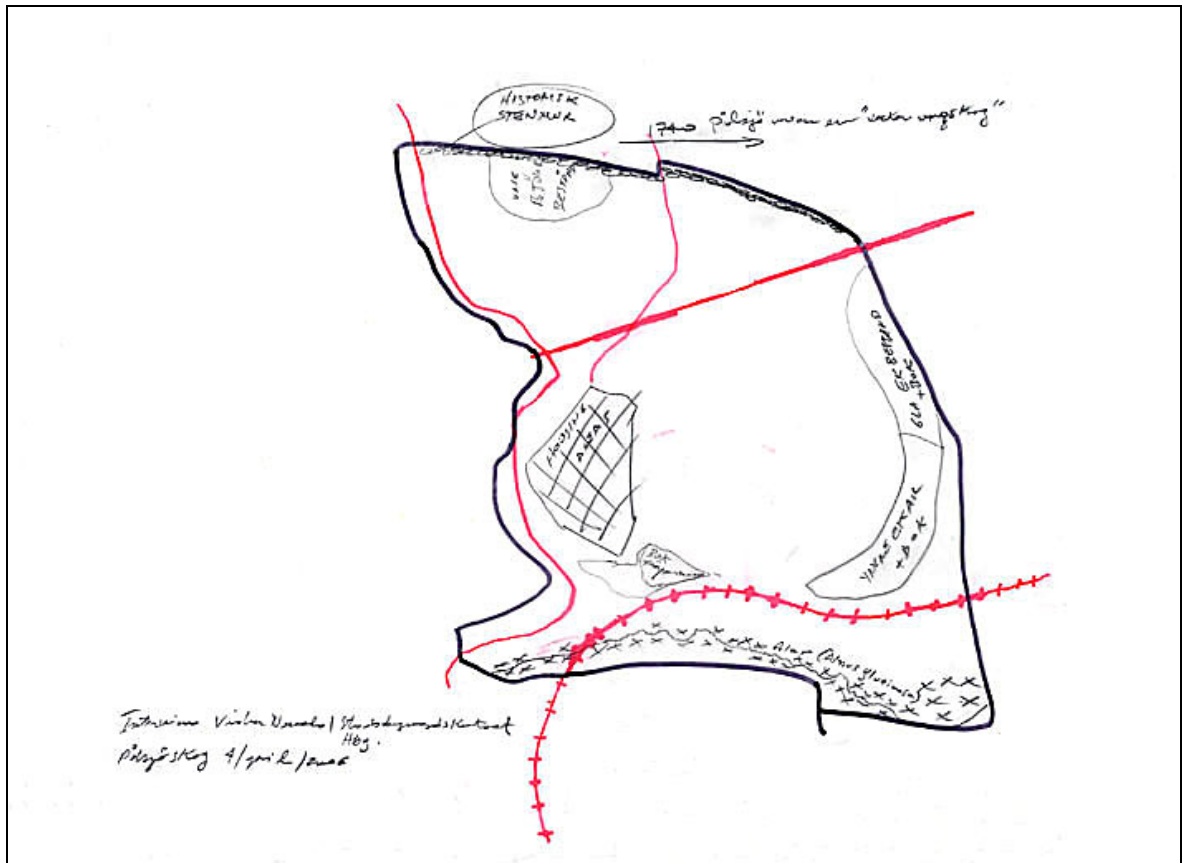
18. Do you know about soil, groundwater, and air pollution in Pålsjö forest?

*a. There is pollution in all of them and this has caused problems to flora and fauna.*

19. Do you have information material like maps, documents over Pålsjö forest?

*a. Yes. Something you need will be sent.*

John Moscoso  
Urban Forestry and Urban Greening  
SLU, KVL, 2006



Appendix 2. Open map used to add information during the interview with Vidar Narvelo, Pål sjö.

## PÅLSJÖ FOREST

Interview with: *Ulf Samuelsson / ENTEK (local contractor)*

Date: *05 April 2006*

### Personal questions

1. What's your position in your job and how long experience do you have?  
*a. Production engineer. Employed since 1988.*
2. What are your work activities in Pålsjö forest?  
*a. Responsible for direct management operations.*

### SWOT analysis (with help of Pålsjö map)

3. Pålsjö's strengths as forest? Future projects...  
*a. Close to people and accessible.*
4. Pålsjö's weaknesses as forest?  
*a. Huge accessibility pressure: paths, corridors, hard paved areas...Politicians pressure as well.*
5. Future opportunities /alternatives for Pålsjö forest?  
*a. Possibility to protect Pålsjö forest. Create different types of forest.*
6. Future threats against Pålsjö forest? Motorways, railways, housing areas...  
*a. Forest exploitation as a park. The eastern Pålsjö forest is hard used.*

### Activities and forest information

7. What is the aim with the actual efforts and forest management?  
*a. Natural management. Free development in a recreational area is the worst alternative.*
8. How big is Pålsjö forest?  
*a. 70 hectares???*

### Comments

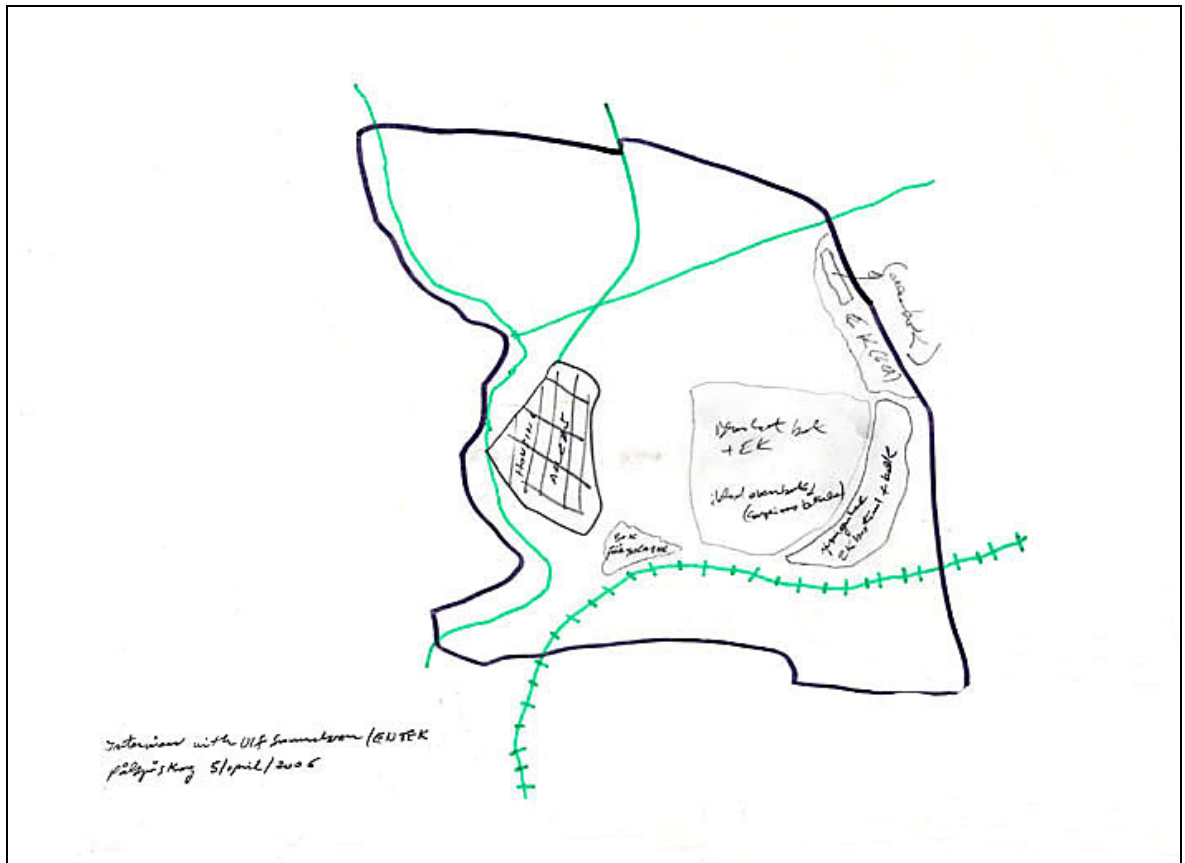
9. How will you see Pålsjö forest in the future?  
*a. Recreational area with variation in trees species, fauna and silence in the forest.*
10. Do you know about Helsingborg's green belt project which started 1966?  
*a. Yes, but it has not been followed. 1986-1988 continues but not followed entirely.*
11. How has Pålsjö forest developed in time according to you?  
*a. It has happened a lot because of the human development, human pressure. Pasture lands with oaks as tree dominants. Later, beech tress and no pastures. Today beech trees are dominant.*
12. What do you think about that development?  
*a. Not good. Oaks should have more chance through thinning, giving more light...*



## Actual Situation and Evaluation of the Forest Management of Pålsjö

13. What does imply for you the natural management that Pålsjö had so far?  
*a. Beeches are taken over the forest in the long run. Since the late 90's it has been a kind of conflict the leadership for management between the different managers.*
14. Do you think the biodiversity has changed? How?  
*a. Not big changes. The dead wood is good for the insects.*
15. Do you think it is necessary another management for the forest?  
*a. The actual tree species shall be managed with natural methods. For the oaks should be improved the management: planting new trees, protecting old and solitaire individuals and with regeneration.*
16. Biodiversity, Recreation, Aesthetics...what is most important for you?  
*a. It is a mixture, they are correlated. To create this mixture is a problem.*
17. Have you consider another different tree/plant composition for Pålsjö?  
*a. No. Natural succession should be accepted.*
18. Do you know about soil, groundwater, and air pollution in Pålsjö forest?  
*a. The drainage system is not maintained today and this causes problems. In the east part of the forest the birches are taking over just because of this. The ditches are stopped and the soil is getting wetter. This should be improved in order to create healthier tree populations.*
19. Do you have information material like maps, documents over Pålsjö forest?  
*a. Some. (I am referred to the local Park department for this material).*

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Appendix 4. Open map used to add information during the interview with Ulf Samuelsson, Pålsjö.

## PÅLSJÖ FOREST

Interview with: *Lars Johansson / Helsingborg's Park department*

Date: *06 April 2006*

### Personal questions

1. What's your position in your job and how long experience do you have?  
*a. Planning engineer. Employed since 2004.*
2. What are your work activities in Pålsjö forest?  
*a. Responsible for the operational management activities of Pålsjö.*

### SWOT analysis (with help of Pålsjö map)

3. Pålsjö's strengths as forest? Future projects...  
*a. The easy accessibility. Few towns have this resource. The forest is friendly to get into thanks to its pillar tree composition with large trunks and high crowns.*
4. Pålsjö's weaknesses as forest?  
*a. The tree's age is high and this is a problem. There are not much of young trees. Most of the trees are even aged.*
5. Future opportunities /alternatives for Pålsjö forest?  
*a. To maintain the forest and favour regeneration.*
6. Future threats against Pålsjö forest? Motorways, railways, housing areas...  
*a. The green forest project from 1996 had not considered recreation but perhaps too much biodiversity values. Helsingborg has 800 hectares of productive forest. Recreation should be valued higher. The railway development, air pollution and no management plans are other threats.*

### Activities and forest information

7. What is the aim with the actual efforts and forest management?  
*a. Free development. In order to favour regeneration some thinning is used. Maintain the forest friendly to visitors by means of cleaning paths and alleys.*
8. How big is Pålsjö forest?  
*a. 65 hectares???*

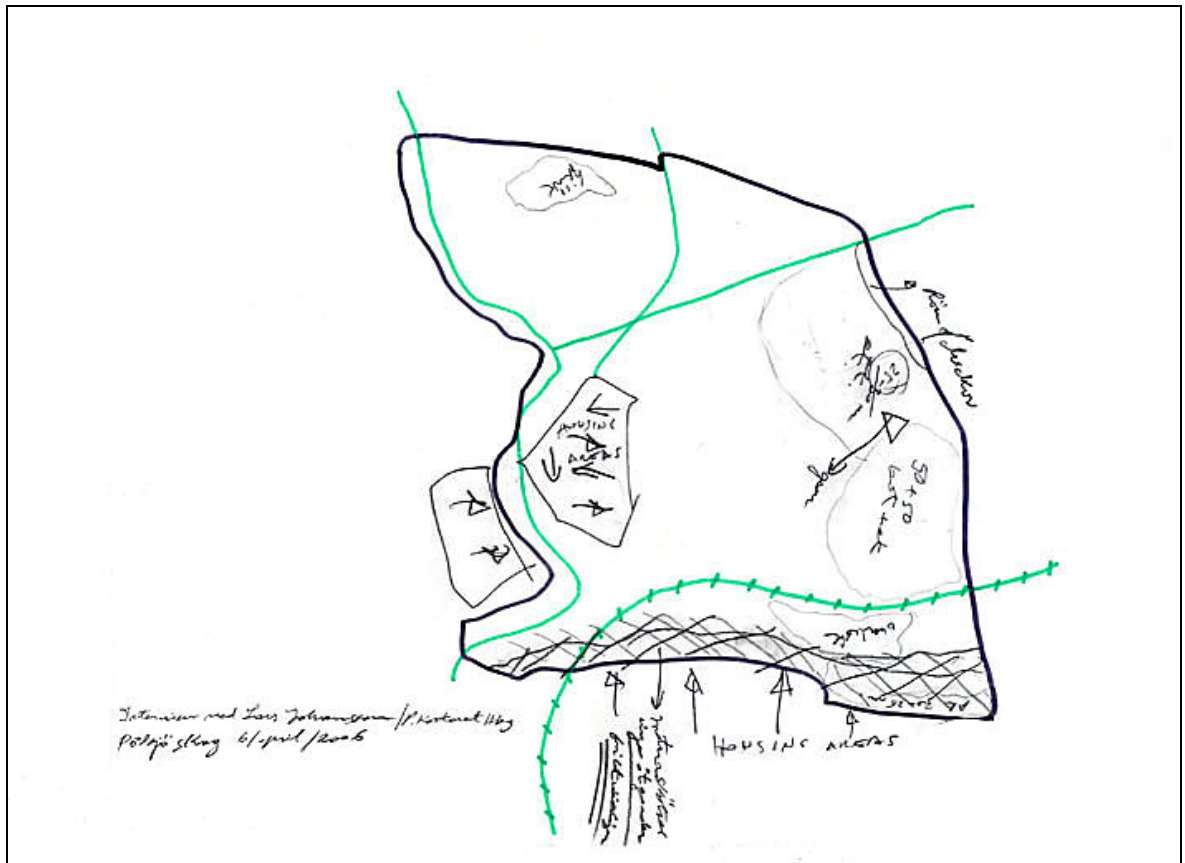
### Comments

9. How will you see Pålsjö forest in the future?  
*a. The ideal picture should be with stronger development of younger multi-aged generations of trees.*

## Actual Situation and Evaluation of the Forest Management of Pålsjö

10. Do you know about Helsingborg's green belt project which started 1966?  
*a. Yes. It has been both pros and cons. Some industries have disappeared behind this green project.*
11. How has Pålsjö forest developed in time according to you?  
*a. Today there is more forest than before. In the late 1900's there were no forest stands.*
12. What do you think about that development?  
*a. The development has occurred because of the human culture. This development has been realistic and should be accepted.*
13. What does imply for you the natural management that Pålsjö had so far?  
*a. It does not function here. If we want recreation we should deal with security issues.*
14. Do you think the biodiversity has changed? How?  
*a. It seems as it has developed more lately, but it was richer when this was a grazing land.*
15. Do you think it is necessary another management for the forest?  
*a. Yes. The management plans should be harder, more thinning, create multi-aged stands.*
16. Biodiversity, Recreation, Aesthetics...what is most important for you?  
*a. Recreation. We have too little forest recreation in Sweden. Aesthetics, then we should ask the users which product they will have.*
17. Have you consider another different tree/plant composition for Pålsjö?  
*a. This forest lacks more ash and linden. The linden should be planted. The ash could be planted in more humid areas.*
18. Do you know about soil, groundwater, and air pollution in Pålsjö forest?  
*a. The pH of the soil is low. The forest is too close to town. The ditches should be cleaned because this area has high groundwater. The beech trees are vulnerable to high groundwater.*
19. Do you have information material like maps, documents over Pålsjö forest?  
*a. Some material.*

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SLU, KVL, 2006



Appendix 6. Open map used to add information during the interview with Lars Johansson, Pålsjö.

## PÅLSJÖ FOREST

Interview with: *Pontus Runeke / Helsingborg's Park department*

Date: *07 April 2006*

### Personal questions

1. What's your position in your job and how long experience do you have?
  - a. *Planning engineer. Employed since 1998.*
2. What are your work activities in Pålsjö forest?
  - a. *Responsible of management (how, where, when) activities and co-operator between the different managers of Pålsjö.*

### SWOT analysis (with help of Pålsjö map)

3. Pålsjö's strengths as forest? Future projects...
  - a. *Close to the city. Close to people. Very well known forest name. The forest has old trees which gives it its character.*
4. Pålsjö's weaknesses as forest?
  - a. *Many trees are in bad shape. Some of the injured old oaks are a risk.*
5. Future opportunities /alternatives for Pålsjö forest?
  - a. *A good possibility for development through regeneration.*
6. Future threats against Pålsjö forest? Motorways, railways, housing areas...
  - a. *Too much recreation. The hard use of the forest.*

### Activities and forest information

7. What is the aim with the actual efforts and forest management?
  - a. *Promote the biodiversity and ecology. Be careful with the felling trees. Protect the recreation areas.*
8. How big is Pålsjö forest?
  - a. *50-60 hectares???*

### Comments

9. How will you see Pålsjö forest in the future?
  - a. *Accessible for people. Development within the forest structure.*
10. Do you know about Helsingborg's green belt project which started 1966?
  - a. *Not from this year. The green areas come later.*
11. How has Pålsjö forest developed in time according to you?
  - a. *History shows that this forest was more open and grazed land. The oak trees had more space to develop. The beech trees come in the beginning of the 20<sup>th</sup> century. Today we have a forest area.*

## Actual Situation and Evaluation of the Forest Management of Pålsjö

12. What do you think about that development?

*a. Trying to go back in time is not an actual issue. We have to accept that this is an outgrowth forest.*

13. What does imply for you the natural management that Pålsjö had so far?

*a. If we leave too much to the free development the oaks will disappear. The consequences will not be good. Birch trees are temporary. Beech trees will dominate.*

14. Do you think the biodiversity has changed? How?

*a. Apparently, because of the development from open grazing lands into forest.*

15. Do you think it is necessary another management for the forest?

*a. It is necessary to repair the ditch system. If we do not maintain the ditches the forest will become too wet. Even beech trees will be affected from this. The ecologists do not act on this. The beech regeneration should be managed more drastically.*

16. Biodiversity, Recreation, Aesthetics...what is most important for you?

*a. Recreation, Biodiversity. Perhaps we do not think of aesthetics. It is not an actual issue to consider doing something for aesthetics by now.*

17. Have you consider another different tree/plant composition for Pålsjö?

*a. No. It is what it is.*

18. Do you know about soil, groundwater, and air pollution in Pålsjö forest?

*a. According to probes the soil has a low pH, in parts 2,9. Generally the low pH is because of the high air pollution. This causes damages on trees. The aluminium blocks the nutrients accessibility. The groundwater controls biodiversity.*

19. Do you have information material like maps, documents over Pålsjö forest?

*a. Yes, some books and maps. (I have got some copies).*

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## ROSENDAL FOREST

Interview with: *Baron Gerard Bennet / estate owner*

Date: *19 April 2006*

### Personal questions

1. How long time have you had the estate?  
*a. The family owns the estate since the middle of 18<sup>th</sup> century.*
2. What are your aims with Rosendal's estate?  
*a. The family and the municipality.*
3. What are the differences between grove and forest for you?  
*a. The Grove is already marked in the old maps (Lunden, in Swedish). Both areas have special taxes. The grove is related to grazing.*

### SWOT analysis

4. Rosendal's strengths as forest? Future projects...  
*a. Different managements: nature oriented, grazing, production.*
5. Rosendal's weaknesses as forest?  
*a. The forest area is only 70 hectares of which 15 are oak grove. The forest area is divided in different sub areas.*
6. Future opportunities /alternatives for Rosendal forest?  
*a. It should be maintained as it is: forest and grazing land.*
7. Future threats against Rosendal forest? Motorways, railways, housing areas...  
*a. The traffic.*

### Activities and forest information

8. What is the aim with the actual efforts and forest management?  
*a. There is an agreement for 50 years with the national forest administration, Skogsstyrelsen. They will maintain the forest and keep ongoing the grazing lands.*
9. How big is Rosendal estate / forest?  
*a. The estate is 800 hectares. The forest is 70 hectares including 15-16 hectares of oak grove or grazing land.*

### Comments

10. Do you know about Helsingborg's green belt project which started 1966?  
*a. It was an area of interest, yes.*



## Actual Situation and Evaluation of the Forest Management of Pålsjö

11. How has Rosendal forest developed in time according to you?  
*a. Marshlands from the beginning. Later on it has been grazing areas until 1890-1900. Then it was transformed into arable lands for increasing the production. The oak grove has been maintained as it is until now.*
12. What do you think about that development?  
*a. The need for food forces to production and divisions. Today I would like to come back to old systems.*
13. What does imply for you the natural management?  
*a. If we leave this oak grove to nature, it will become like Pålsjö forest.*
14. Do you think the biodiversity has changed in Rosendal? How?  
*a. In the last years the hares, pheasants and partridges have diminished.*
15. Do you think it is necessary another management for the forest?  
*a. Not by now. It is a pleasure to maintain the oak grove as it is.*
16. Biodiversity, Recreation, Aesthetics...what is most important for you?  
*a. Production, because it must function economically.*
17. Have you consider another different tree/plant composition for Rosendal?  
*a. No.*
18. Do you know about soil (type, pH), groundwater, and air pollution in Rosendal forest?  
*a. Do not know. (I am referred to Lennart Bengtsson at the national forest administration, Skogsstyrelsen, whom I phone on the 26 of April. Lennart replies that the presence of certain mosses and lichens on the oak trees shows the presence of high amounts of nitrogen).*
19. Do you have information material like maps, documents over Rosendal?  
*a. Yes. (Indeed I was even aloud to photograph some old maps of Rosendal).*

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SLU, KVL, 2006

## SMÅRYD FOREST

Interview with: *Charlotte Gabrielsson / Helsingborg's building bureau.*

Date: *02 May 2006*

### Personal questions

1. What's your position in your job and how long experience do you have?  
*a. Ecologist. Started working for the bureau over a year ago.*
2. What are your work activities in Småryd forest?  
*a. Management plans considering ecology, culture history and outdoor aspects.*

### SWOT analysis

3. Småryd's strengths as forest? Future projects...  
*a. Historical place with haymaking meadows remnants. The high moving groundwater which is vulnerable to changes. The presence of small scaled landscapes.*
4. Småryd's weaknesses as forest?  
*a. The motorway 111 and its noise.*
5. Future opportunities /alternatives for Småryd forest?  
*a. Today it is used as a recreational place. It should have a better future. Strength the reserve by means of buying the neighbour forests in order to enlarge the area.*
6. Future threats against Småryd forest? Motorways, railways, housing areas...  
*a. The urban development of Helsingborg. Today the 90% of the municipality is agricultural lands. The railway is another threat.*

### Activities and forest information

7. What is the aim with the actual efforts and forest management?  
*a. Coupe with the national environment objectives: living forests, protect the environment. Maintain the actual beech forest, convert the coniferous forests into deciduous. Protect biodiversity.*
8. How big is Småryd forest?  
*a. The natural reserve is 31 hectares. It became a reserve in December 2005.*

### Comments

9. How will you see Småryd forest in the future?  
*a. A deciduous forest. A bigger nature reserve including the actual small and private neighbour areas. More accessible for the public. With more information signs.*
10. Do you know about Helsingborg's green belt project which started 1966?  
*a. No.*

## Actual Situation and Evaluation of the Forest Management of Pålsjö

11. How has Småryd forest developed in time according to you?  
*a. Before it has been grazing / haymaking open areas. Later it has been transformed into forests.*
12. What do you think about that development?  
*a. Do not like the production activities.*
13. What does imply for you the natural management that Småryd had so far?  
*a. That trees should become old naturally. That dead wood should be left in situ for the benefit of living insects.*
14. Do you think the biodiversity has changed? How?  
*a. This is part of our landscape today and it has changed. It has partially changed by the forest when becoming another environment.*
15. Do you think it is necessary another management for the forest?  
*a. Yes. Every forest with unique values demands special management. It is important to lead the management in order to produce better and direct actions. Today it seems that are involved too many.*
16. Biodiversity, Recreation, Aesthetics...what is most important for you?  
*a. Biodiversity. The species should be maintained. Recreation should exist and I myself will experience it. Aesthetics should exist with biodiversity.*
17. Have you consider another different tree/plant composition for Småryd?  
*a. No. The actual spruces should be replaced by noble deciduous species and a mixture of them, like: oak, beech, maple, linden, elm, hornbeam, wild cherry, hazel and ash.*
18. Do you know about soil, groundwater, and air pollution in Småryd forest?  
*a. No.*
19. Do you have information material like maps, documents over Småryd forest?  
*a. Yes, documents and maps. (I have got Småryd's management plan, soil types and an old map from the late 1700's, as well from Småryd).*

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SLU, KVL, 2006