

“I stand here. I will not move”

– Women in forestry in northern Sweden during the 20th century

”Här står jag. Jag flyttar mig inte” - Kvinnor som arbetat i skogen i norra Sverige under 1900-talet.



Hedda Lovisa Johansson, 1899–1978. Foto: Carina Johansson

Maria Grånemo

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Abstract

Forest work has traditionally been narrated from men's perspectives and experiences. This research focus on women's narratives from manual forest work in northern Swedish forest during the 20th century. During a time when major changes took place in both Swedish society and forestry enhanced work opportunities opened up in the forest for women in rural areas. I have interviewed 25 women who worked on planting, pre-commercial thinning and logging, and other forest work. Most women grew up in the rural parts of northern Sweden and were used to work from a young age. Many appreciated working outside in the forest and enjoyed the comradeship. The forest and forest work have strong connotations to masculinity and men's labour. Women did not traditionally belong in this work sphere, especially not as a logger. As women they met challenges and resistance and had to have determination and stand up for themselves. But working in the forest also gave women a sense of freedom and personal satisfaction.

The invisibility of women in historical documentation contributes to women's role and their importance in history being forgotten. It further contributes to the reinforcement of forestry, in terms of both competence and labour, being considered best suited for men. This can further affect women's attitude toward working within the forest industry today. My findings show that women, regardless of the male myth around forest work, are just as suitable, able and skilled to perform manual forest labour as anyone else.

Keywords: forest history, women in forestry, gender, logging, forest work

Sammanfattning

Skogsarbete har traditionellt varit dokumenterat utifrån mäns perspektiv och upplevelser. Den här studien fokuserar på kvinnors perspektiv från manuell skogsarbete i norra Sverige under 1900-talet. Under 1900-talet skedde stora förändringar både i samhälle och i skogsbruket i den här delen av landet, vilket öppnade upp för bättre arbetsmöjligheter för kvinnor i skogsarbete. Jag har intervjuat 25 kvinnor som har arbetat med plantering, röjning och huggning, samt annat arbete i skogen. De flesta växte upp på landsbygden i norra Sverige och var vana att arbeta från en ung ålder. Många uppskattade arbete ute i naturen, sammanhållningen och kamratskapet som skogsarbete innefattade. Traditionellt har skog och skogsarbete varit starkt kopplat till maskulinitet och mäns arbete. Kvinnor hörde därmed traditionellt inte in i den skogliga sfären, speciellt inte som huggare. Som kvinnor mötte de utmaningar och motstånd. De behövde därför vara beslutsamma och stå upp för sig själva. Men det skogliga arbetet gav också en stark känsla av frihet och stolthet.

Kvinnors osynlighet i historisk dokumentation bidrar till att kvinnors roll och deras betydelse i historien glöms bort. Det bidrar ytterligare till att skogsarbete och skoglig kompetens fortsätter anses bäst lämpat för män. Detta kan vidare påverka kvinnors attityd till att arbeta i skogsbruket idag. Den här studien påvisar att kvinnor, trots den manliga myt som kännetecknar skogligt arbete har varit och är än idag lika lämpliga, kunniga och kapabla att utföra manuellt skogsarbete i alla dess former.

Nyckelord: skogshistoria, kvinnor i skogsarbete, genus, skogsarbete, huggning

Table of contents

Introduction	7
1. Materials and methods.....	9
1.1. Interviews.....	9
1.2. Data collection	11
1.3. Data analysis	11
2. Results.....	13
2.1. Loggers.....	14
2.1.1. The physical working environment	17
2.1.2. The social working environment	19
2.2. Planting, pre-commercial thinning and other forest work	22
2.2.1. The physical working environment	24
2.2.2. The social environment.....	26
3. Analysis and discussion.....	29
3.1. Women in forestry - socio-economic development during the 20 th century	29
3.2. Women in forestry undergoing development, effectivization and modernization	31
3.3. Norms, social values and women in Swedish forestry during the 20 th century	32
3.4. Women in forestry – observations on different forest work	33
3.5. A broader perspective on women in forestry, in Sweden and internationally	35
3.6. Women in forestry, historically and in the present day.....	37
4. Concluding remarks	39
Acknowledgements.....	40
References	41

Introduction

Since the beginning of the 20th century northern Sweden, including the forest sector, has gone through tremendous changes (Bäcklund 1988). Society changed from being dependent on agriculture to becoming fully industrial. Forestry went from dimension-cutting with a manual labour force towards intensive clear-cutting forestry that is highly mechanized. At the beginning and during the first half of the 20th century multi-purpose farming was still very common in the inland parts of northern Sweden (Bäcklund 1988). In this rural society small farms were the foundation of the family economy. To improve family economic conditions and standards, subsidiary work in the forest was common practice (Bäcklund 1988; Lundgren 1984). It was predominantly during the winter half year that (mainly) men went off to work in the forest. Women, however, had the major responsibility for work on the farm and in the household all year round (Fiebranz 2004; Ryd 2005). Women and children could also contribute to the family economy by harvesting, and selling, cones during the winter or berries in the summer (Fiebranz 2010; Vallström 2010b). Around 1950 small scale farming started to decline and it was then replaced by larger agricultural units and paid work. More people also moved from rural areas to larger industrial and growing regions at the coast and in the south of Sweden (Bäcklund 1988). As forestry changed, the old logged-over forests in northern Sweden were replaced by large clear-cut areas spread widely across the forest landscape (Ebeling 1959; Lundmark et al., 2013). To re-establish forests and enhance growth, there was new and increased demand for work in forestry. In addition to logging and floating timber, regeneration and management work such as planting and pre-commercial thinning became necessary. The modern style of forestry began to take place.

Traditionally, forest work has been seen as one of the most masculine occupations, in Sweden as well as in all other locations where large-scale logging has taken place. Forest work was work for men, individually as well as collectively (Johansson 1994; Reed 2003). In contrast, the work women have performed in the forest sector has generally been neglected (Johansson 1994; Östlund et al., 2020). However, women's work has been essential for forestry, despite the fact that it has seldom been taken into account (Fiebranz 2010; Östlund et al., 2020).

Historical research on and documentation of forest work is often focused on men's narratives, and concerns men's work in the forest (e.g. Hjelm 1991; Johansson 1994; Ryd 1980). While more recent research focuses on women's work and perspectives, like cooks in logging camps (Hultmar 2002; Östlund et al., 2020) or gender and power-division in modern forestry (Johansson & Ringblom 2017; Lidestav & Sjölander 2007), there is no body of earlier research focusing only on women's narratives about manual forest work. Hence, there remains a knowledge gap on the subject of women's work in forest history.

This study explores women's manual work in the Swedish forests between 1940 and 1999 with the goal of enriching our forest history. I interviewed 25 women working in logging, pre-commercial thinning, planting and other forest tasks. I intend to narrate a general picture of their work and highlight aspects of their experiences in the context of the social and physical circumstances related to forest work during the 20th century in northern Sweden. Further, I will discuss the women's work in relation to general perceptions of forest work, historically as well as today. I also intend to put my findings in a broader context of international research. I hope that this study will make women and their work more visible. In this context my aim is to answer the following questions:

1. How and why did women work in the forest and what kind of manual forest work have women done?
2. How did women perceive forest work and working in the forest?
3. What were physical and social working conditions like?
4. What was the status of female forest workers among other workers and what position did they have in relation to male forest workers as well as in society?
5. Has the invisibility of women in forest work had any lasting effects, and if so why?

1. Materials and methods

1.1. Interviews

This research was based on semi-structured open-ended in-depth interviews with women who worked in forests in northern Sweden during the 20th century. In total 25 interviews were conducted with women who were born between 1930 and 1970. Most lived in the Counties of Norrbotten and Västerbotten, and one in the County of Dalarna (figure 1).



Figure 1. Map showing the distribution of where the 25 women, I interviewed for this study, worked and lived at the time they worked with forest labour.

Before the interviews, a detailed template with questions was prepared, to provide the outline for the semi-structured open-ended interviews (appendix 1). The questions were broad and open-ended to allow the informants to speak freely. When

important questions were left unanswered, follow-up questions such as “could you develop”, “can you explain”, “how was that” were used. The template was carefully followed for each interview, but minor deviations were accepted if they were still relevant to the aim of my research (Ryen 2004). Most interviews were between 60 and 90 minutes long, and many (16) were conducted in the home of the informant (ESM 2). Due to the current circumstances resulting from Covid-19 a few (7) interviews were held over the phone or via digital communication programs, such as Teams. One interview took place at a café in Arjeplog and one in the home of the researcher. Notes were written during and immediately after the interview. During the interview I took notes so that I would remember feelings and reactions, both my own and the informants, which could not be recorded but were still important for the analysis (Trost 2010). Afterwards I summarized for myself what had been shared and my reflections. I recorded and transcribed all interviews.

1.2. Data collection

A purposive sampling approach was adopted to obtain informants (Newell & Burnard 2011; Trost 2010). Purposive sampling is a deliberate method for the recruitment of informants who are likely to have the most relevant information to share, according to certain pre-set criteria (Newell & Burnard 2011). For this study the basic criteria were: Woman, working between 1900-1999, carrying out manual forest labor, living in northern Sweden. Purposive sampling is often very selective, producing a unique group of informants all of whom might end up participating (Newell & Burnard 2011), and this is the case in the present study.

Most informants were found by snowball sampling, a type of purposive sampling that allows the selection of likely and suitable candidates from groups that are difficult to reach (Newell & Burnard 2011; Trost 2010). The term snowball sampling means that informants give information about additional people who might be suitable to interview (Newell & Burnard 2011; Trost 2010).

1.3. Data analysis

In qualitative data analysis data are examined and interpreted in order to understand what it represents. There are two common approaches: the inductive and the deductive (Spencer et al., 2004). I chose inductive coding because it is an approach in which the information itself sets the framework for coding and analysis (Williams et al., 2004), in contrast to deductive coding (ESM 2). The aim was to find associated elements among transcript information (data) from the interviews (Hedin & Martin 1996), from which I derived my findings. It is common that the

two approaches are combined to different extents in qualitative data analysis (Hedin & Martin 1996).

A thematic content analysis was undertaken to identify themes from the transcript by analyzing sentences and words (ESM 2). This is a commonly used method for analyzing qualitative data within the inductive approach (Pope et al., 2000; Richie et al., 2004). The analysis process consisted of the following steps: 1) Writing notes after each interview and transcribing interviews 2) Reviewing all transcripts several times 3) Initial coding of transcripts 4) Identifying themes/categories 5) Reducing themes and categories to a final list of categories 6) Associating each category with a color and assembling citations into categories, organized by color, to generate a final organized dataset, from which the researcher chooses findings for report writing. The analysis process is based on the steps presented by Bernard (2006). Emphasis was put on each informant's perspectives, experiences, views and attitudes in the analysis. When choosing illustrative quotes, the aim was to give nuance to the findings. All quotes were translated from Swedish, with an emphasis on keeping the original verbatim character. The quotes are numbered according to the order in which they are presented in the text and all quotes in their original language are presented in a separate appendix (appendix 2).

I have classified answers using words, in order to facilitate analysis and simplify the writing of findings, as follows:

- 0-25 % = a couple
- 26-50 % = some/ a few
- 51-75 % = several/ many
- 76 – 99 % = most
- 100 % = all

In the results the classification above is adjusted, according to the number of women who worked as loggers (8) and women who worked on planting, pre-commercial thinning and other forest work, in two separate groups (ESM 3). Since all women worked on either planting or pre-commercial thinning, all 25 are included in the latter group. I have chosen to present them separately in the results to enable deeper analysis.

2. Results

The results consist of the main findings from the information gathered and I will start by describing the backgrounds of the women I interviewed. Most of the women grew up in a small town or in the countryside in the interior of northern Sweden (ESM 4). Many grew up in small farming households and were used to help out from a young age; as one woman said: *“many of my age came from homes with small farms and were used to help”* (1). To exemplify her life one woman from Arjeplog described it thus: *“We had a break in September [from school], called the potato-break, because it was a peasant society, then one had to help with the potatoes”* (2).



Figure 2. A group of children working with putting seeds in the ground after a clear-cutting around 1925-20. In Älvros parish, Jämtland County. Photo: Jonas Backlund. Source: Jamtli photo collections

All women went to school; most went to elementary school for between 6 and 9 years. One woman never got to finish school, even though she wanted to, because she had tuberculosis. The doctor had told her: *“I will tell you little miss, he said, one who has no health doesn’t need no knowledge”* (3). Among the younger women, born later in the 20th century, many also went to high school or other further education.

Most of the women I interviewed had had several forest jobs, starting at different ages and working for different lengths of time. Several sprayed phenoxy acid herbicides on birch, worked in regeneration burning, marked trees for felling, barked logs, and/or picked cones to sell for processing. Some had been planting supervisors, two had been cooks in logging-camps and a couple cleaned logger’s forest-huts. The predominant work was logging, pre-commercial thinning and planting, which are the focus occupations for this study.

2.1. Loggers

In total eight of the 25 interviewed women worked as loggers, at some point in their lives and for different lengths of time. Most had done other forest work, such as planting or pre-commercial thinning, before becoming loggers. Three started logging in their teens but most were adults, between 20 and 40 years old. Most started working on logging during the latter part of the 20th century, mainly in the sixties and seventies. Only one woman, a logger from Junsele parish, started earlier, in 1940. She worked for the longest time, 35 years; the shortest time worked was one winter season.

Introduction to logging, prior knowledge and education

Some women got their jobs by asking a state forester or foreman directly. Two women were offered the job via The Employment Agency, with the aim of having women in forest work. One of them recalls: *“And the last winter, they had come up with the idea to have a test group of women to log timber. And I was like [laughs] Yes Please!”* (4). Five women went to applied forestry school before working as loggers. One of them was recruited by the state forest company before she finished school. For two of them, practical experience was required in order to proceed with further forest education, which was their intention.

[...] because I was going to be a forest technician, I had to do practical work in logging. So, I went to my old state forester here in Vilhelmina and asked if I could work with logging. “Yes, well”, he said “you were good, you can join in logging. (5)

The rest studied with the intention of becoming loggers and working in the forest full time, which they did. One of them was told to go to the applied forestry school by the state forester in Moskosel, where she lived, and he would give her work as a logger when she was finished. For several of the women working in the latter part of the 20th century, applied forestry school attendance was a requirement to become a logger. The woman who started to work in the first half on the 20th century, in Junsele, had no educational requirements. At 14, she started picking tree cones, which she sold to forest companies for processing. Because she had been ill with tuberculosis, she was not allowed to finish school and said she had to start providing for herself. She said that the positive aspect of the lack of forest workers was that she was welcomed with open arms. She learned logging during this time, on her own initiative, by going between loggers who worked in the area and learning from them, using hand saw and axe. She remembered these times well:

I used to borrow a saw from one of the loggers and learn. [...] So, I went among them loggers and learned. Then, when I was 18, I cut timber for my grandfather, one stand marked for cutting, on my own. After that, I started working for SCA. (6)



Figure 3. Anton Lövgren med huggare och timmerlass, 1937. Photo: Unknown. Source: Västerbottens museum. Photoowner: Manfred Lövgren

Three quit logging to pursue further forest education. One of them, a woman from Vilhelmina, said she would not have worked full time as a logger. Not because the work was too heavy, as she was physically fit, but rather given the working

environment and health concerns. She said: *"This with the working environment, I cared a lot for my health. With standing in gases and the vibrations..."* (7). One logger, who worked in a Malå district, quit after a year because she felt piling logs after grading was physically too strenuous. She would have liked to study forestry, but since her husband had work that meant he was away at times and they had a daughter, it did not work out. Some stopped working as loggers when they were let go by the company they worked for, as forest machines took over their duties. For most of them this change took place at the beginning of the nineties. One woman recalled: *"But then they quit with manual loggers -93. So then, then all the loggers were let go"* (8). Among the women who were let go, all kept on doing other forest work. One of them, however, mainly worked in the forest alongside her full-time job of home care. None of these loggers had any interest in continuing with mechanical logging, even if it were offered to them. One logger had said from the start that she would not work with a machine: *"I decided in applied forestry school that I would NEVER sit in a forest machine"* (9).

Perception and attitudes towards logging

Meanwhile many wanted to work as a logger, and some got the opportunity and they took it; as one logger said: *"It wasn't that I was interested, it was to get myself a profession"* (10). Most had an interest in nature and forests from a young age, and some had helped their fathers in the forest. They appreciated the forest as a working environment, the physical work and described the freedom as an important factor. Several loggers said, directly or indirectly, that they were fit and physically strong, even though, according to them, that was not the most important criterion for working as a logger. Many also appreciated the planning of work as well as seeing the results at the end of the day. They felt that the work was meaningful. Their attitude is exemplified in the following quote:

I enjoyed the work all the time. Because, I like being out in the forest, I like working with the body. Well, it showed what one had done. It's such a satisfaction when one leaves for the day and sees: Yes, this is what I've done today. (11)



Figure 4. Siv Jonsson, a day at work as a logger. Photo: Jan E Carlsson. Source: *Dagens Nyheter* 15 juni 1987

2.1.1. The physical working environment

Logging for most women in the study was performed during the winter half year, from October/November until spring when the snow melted. A couple were able to work on logging throughout the whole year. Working hours often depended on available daylight and most people had two breaks. The breaks are described by several of them as a time for socializing, loggers telling stories and joking around with each other. One logger recalled: *“Well, we laid back on the benches towards the wall. It was nice. So, one laid there and listened to... There was always someone telling a story or talking, in a good soft tone.”* (12).

Clothes and equipment

Tools and clothes were generally very similar among the loggers. Most of them were provided with working clothes and equipment, such as a chainsaw, by the company they worked for. They describe clothes as being adapted to men's bodies and sizes. Generally, that was not a problem among the women, as one of them explained: "*Because there are all sizes on the men*" (13). They would choose smaller sizes, or clothes that fitted them, and adjust measurements, such as arm and leg length. Two of the loggers said clothes or equipment was heavy, which they considered a problem, but nothing they could do anything about. As one said:

It was just to adapt when you didn't have that figure. It was the norm. Heavy stuff, the logger boots was really heavy. The rain clothes were very thick, enclosed all the sweat because they were so impenetrable and then they became wet and heavy. (14)

Most of the loggers worked with chainsaws from the start. They describe the chainsaws as easy to work with and not too heavy, but it was important to keep the blade sharpened. Only one logger started out with an axe and hand saw, the logger in Junsele parish. She had to work to earn wages before she could afford to buy her first chainsaw in 1957, with money from her own pocket.

It was only until -57 then I went and bought myself a chainsaw. One didn't need no license for chainsaws at that time. One didn't have to learn either. (15)

She is also the only one who worked as a logger when they still used horses to transport timber. However, one of the other loggers worked one winter, in her late teens, with her father and brother, transporting timber with their horses for the State forest company.

Attitudes towards the physical work

Many described physical work that was heavy at times; however, most loggers did not regard that as a problem. All said that the work mostly depended on planning, technique and good equipment, as one logger commented: "*The technique was very important. One had to know the technique for it to go well, plan the felling. That it was heavy wasn't the biggest problem.*" (16).

Many described feeling proud about their work, proud that they could do it, proving their ability, as one said: "*I think it's a satisfaction also, 'even though I'm a woman, I'm just as good as you are.'*" (17).

2.1.2. The social working environment

Most women described it as a good time in their lives when they were working as a logger, something several would do again. This was despite the fact that most had met resistance among loggers, from family members or society. Many described other loggers as having been skeptical when they started but by proving they could do the work well, those views changed. As one of the women explained: *“You got to have... you had to create the possibility to... to stand up for yourself. I stand here. I won’t move”* (18). Only one logger never experienced any questioning. Living in a small society she thought that maybe people thought logging and working in the forest suited her. She described her feeling as the only woman in an otherwise all male team: *“It was only men, but they behaved so well so there was never anyone who questioned”* (19). This was similar to many of the other loggers' attitudes towards working only with men.

Many said they were respected among the loggers. *“Respect”, “unity”* and *“good atmosphere”* are common words they used to describe the social environment in the logging-teams. *“Well, I felt like I was one of them, and I like being out in the forest, it’s that also”* (20). Even so, for many it could take a while working to reach that mutual respect. One woman said that as the other loggers saw she could do the work their skepticism went away. All the loggers worked in all-male teams, except the **one** who worked one winter via the project for women in logging; she worked with one more woman. She thought the male loggers enjoyed their company, even though one of the loggers, her uncle, had expressed his displeasure. She remembered his attitude while laughing: *“One of the men, an uncle of mine. He was so pissed, that women would have to be in the forest! [...] he was not pleased, no. He said to the forest foreman to be ashamed”* (21).

Three loggers brought up specific times when they were tested by other loggers or forest workers. They described not commenting on it; instead they cut the extra trees or jumped from the driving forest machine. As the logger who started with a hand saw told: *“They had been rearranging the cutter’s area, so they [some large pines] came on my side. I had nothing to do, since they stood on my side of the cutter’s area, but to cut them down.”* (22). The logger working in Rota territory outside Piteå was met with flyers and magazines of naked women on one occasion when she came to the forest hut. She was devastated but wouldn’t say anything. Instead it was an older logger who had come in later that had told the men off. She said: *“A small old man from Fagerheden, and he said, ‘But boys, what are you doing?’ And you know I was so touched. And just down with everything, just like that.”* (23).

Even though many met resistance when starting, all women said loggers would help each other in the teams, both ways. Several put emphasis on the cohesion and cooperation in the logging teams and some who later had other positions in forestry said that the unity was something they never experienced after that. The logger in Junsele parish was skilled at sharpening, and other loggers could come to her to get the blade sharpened. And two loggers described times when other loggers needed their help with felling.



Figure 5. A wood sculpture of Siv Jonsson, one of the loggers. Photo: Maria Grånemo

Society and family

Much questioning also came from the logger's family or surrounding society. They were questioned to different extents; some could just brush it off while others had to work for their choice. The woman from Moskosel said her family thought being a logger was a good job, and that it was others who thought it too strenuous for her. A common opinion several had is that the resistance they met had to do with logging being regarded as male work. The logger who worked in Tornedalen said: *"I remember someone told me there went a rumor that all the men at Domänverket had to be really lazy if a girl could arrive and cut as much as they did"* (24).

While several women had the support of their families, some had to stand strong to justify their choice of work, even though many had worked in other forest jobs or helped the family at the homestead. One logger said her family never really changed their opinion of her choice: *“It never changed, mother and father and my siblings and so, they always thought I did wrong”* (25). Two of the women had fathers who especially didn’t like them logging. Their fathers wanted better jobs for them, more suitable, compared to hard forest work, which had a lower status. The logger in Tornedalen was initially persuaded by her parents and a teacher to go to regular school instead of applied forestry school. However, she quit those studies to start working as a logger. She was then denied work at several places until she describes how she got irritated at a forest supervisor for denying her work just because she was a woman. She said:

And then I got a little pissed and said “But, damn it, it’s just sad this is how it is, just because I’m a woman I can’t get a job. That’s remarkable”. Well, I burst out. And I think he was a little startled and said “Well, we could try and see how it goes”. Something like that. (26)

Two of the loggers had children while working and one of them, the woman working with logging in Rota territory, worked while pregnant. While the teammates thought she should be let off work during her first pregnancy the doctor thought otherwise, she explained:

The men said, when it [the baby bump] started to show, ‘we think it’s time you stop, it could be dangerous’. So, I went to the doctor and said that and he just looked at me and said ‘It’s not a disease to be pregnant’. All right, I said and continued to work as long as I could. (27).

The perception of forest work

The most common perception among the loggers was that forest work, especially logging, is traditionally regarded as a man’s work. Some said that is why women’s work has gone under the radar, because they were so few. Although all loggers knew other women who worked in the forest, mostly in planting, most were the only woman working as a logger they knew of at that time. Others said women are not mentioned because they mainly did work, such as planting or cooking in loggers camps, which has not been regarded as real forest work, even though they thought it should be. One logger reflected over this as follows:

It’s quite typical, the fact that women’s work hasn’t been counted for. I mean, the women who worked as cooks in logging camps. What kind of work do you think that was? It was at least as demanding as cutting. (28)

A couple also mentioned that the perception is the same today. Women are not seen as equally obviously being able to work on tasks that are considered physically heavier. The logger working in Junsele parish said newcomers might refer to her as him, not realizing she was a woman. She explained that logging was seen as male work, hence she was perceived as a man. However, for many of them it was obvious that they would be able to work as a logger, although it was not taken for granted in society.

Furthermore, many loggers thought it difficult to say what their status was in a wider social context, although they believed their status in logging-teams was equal to that of men, since they could do, and did, the same work. One of the loggers also mentioned the type of employment as being a factor in women's status in forestry. She meant that the loggers who were hired full-time were regarded as more important compared to those hired seasonally. Since women mainly did the latter, they probably were ranked lower, while she felt just as valued as anyone.

2.2. Planting, pre-commercial thinning and other forest work

All the 25 women I interviewed had worked with planting or pre-commercial thinning, several of them with both. Two women also worked full-time out in the forest color marking logs after trees had been felled and graded. This was work where they sorted logs into mass or timber.

Most women started working during the second half of the 20th century, many during the sixties and seventies. Two started in the first half, during the forties. Many started working in planting as children, teenagers or young adults; a couple were as young as 11-13. Some were adults and a few had children when they started: *"I was in my first planting the year I got married, both me and [the husband] was in the planting there"* (29). All women working with pre-commercial thinning were adult or teenagers older than 15 years when they started.

Introduction, prior knowledge, education and how did it end

Working in the forest was for many one of the few working opportunities they had either when young or as adults, as one woman explained: *"Well, there wasn't very much else to do, there weren't that many jobs to get, it was to take what you got"* (30).

Many women got their jobs via someone they knew or applied personally to the state forester. Living in smaller communities, direct contact was not unusual. One

woman explained: *"You called and signed up and you were let know when to start then"* (31). A couple got their job via the Employment Agency and some got jobs via someone who already worked in the forest, often a father or a friend, as one woman in Arjeplog said:

Then I was offered by my cousin Linnea. She was in the same pre-commercial thinning team as Elsy. She called me and said she had spoken to the state forester and said there was one more who could work. (32)

No prior knowledge was required to work in planting or pre-commercial thinning. Working with the latter, most, except those who had attended applied forestry school, got an introductory course with a forest worker or at an applied forestry school. One woman explained: *"And we were taught by an old forest worker. So, I went like on a pre-commercial thinning-course with him."* (33). A couple learned by doing and had team-mates who showed them how to work the bush saw.

Their perception and attitude towards planting, pre-commercial thinning and other forest work

While many believed planting, pre-commercial thinning and such forest labor was good work, often the only job available, a couple did not like it at all. Some also said it was not about having work that was fun, it was about having work, contributing and making money (ESM 4). Several put emphasis on the work environment and team-mates being most important: *"Much depended on the team-mates or who you had with you"* (34).



Figure 6. A group of women having a break during a day's work with pre-commercial thinning. Photo: Bodil Stenlund

“Freedom”, “being outside”, “good team-mates”, “physical work”, “seeing results” are common words they used to describe why they enjoyed the work. Among the women who worked as adults most mentioned the freedom of working being something they appreciated. Many appreciated seeing the results of the work they did and thought their work was important for forestry. One woman working on pre-commercial thinning in Jokkmokk said: *“... it was something creating over it. [...] One helped to create the future forest stands. And that was interesting.”* (35).

2.2.1. The physical working environment

Most women had seasonal employment, starting during spring, when snow and ground frost disappeared, and working until autumn, when snow arrived. Two of the planters lived in a forest hut during one or two summers when they planted as children/teenagers. One described: *“A forest hut, where maybe forest workers who cut timber lived before”* (36). However, most drove back and forth every day, often sharing cars.

Clothes and equipment

Women working in planting wore their own clothes, unless they also worked in pre-commercial thinning or logging. Two women who planted during 1940 and 1950 wore dresses, and one said getting clothes wasn't even a possibility at that time: *"No, it wasn't even on the map! No, god no. I think I had a dress. [...] It wasn't modern either for women to wear pants. I guess it was sinful"* (37). All women in pre-commercial thinning got clothes from the companies they worked for, to different extents. Some had to modify clothes and the harness for the bush saw, to fit them. Many, like the loggers, said the clothes worked fine even if they were not adjusted to their sizes. One woman said: *"There was in general not much female clothes, and it looked quite funny because, more or less everything was too big..."* (38).

Many of the women who worked with pre-commercial thinning described taking care of their equipment as an important part of their work. They sharpened the blade on the bush saw and fixed the machine when it broke down. As a woman in Arjeplog described: *"Sometimes one could sit for some hours to fix with the saw there. Otherwise, if the saw broke, they [company garage] came and took care of it"* (39).

Attitude and perception towards the physical labor.

Many enjoyed doing physical work, even if it could be heavy. Physical work was something most regarded as positive; they felt that they became fit and strong. None of the women in pre-commercial thinning felt the work was too heavy or something they couldn't do. Keeping the chainsaw sharp made the work easy. Many rather enjoyed the physical labor. One woman working in Arjeplog said: *"Well... one was young and so, one didn't care about that... I guess it was heavy, but when one started with the bush saw it was heavier.... But that worked fine as well."* (40). Heavy work, or physical work, was something many were used to.

A couple who worked on planting felt the work was very heavy, since they were young or children. Two of the most frequently mentioned negative aspects were continuous walking with a bent back and hacking at stone when planting. One woman who planted as a child, said the work paid good money and added: *"But it was heavy. It was very, very heavy. Using that planting mattock and also carrying out all the plants oneself"* (41).



Figure 7. Woman with a planting mattock on a clear-cut. Photo: Bodil Stenlund

2.2.2. The social working environment

Most described often working in teams with others, though still working individually. A couple mainly worked in teams with women and some worked with the same people for several years. *"It was the friendship really. It was, I guess, important. And... experiences also"* (42). The friendship and social atmosphere were something they enjoyed. Most described a good ambience, with a lot of laughter, sitting together during the breaks joking and telling stories. Most sat outside during the breaks, and made a fire to warm food and make coffee, and they said it was the best time.

Though few recall any bad manners one woman said she and a friend were accused of cheating with the plants. She did not say anything but her friend brought the forest supervisor to count the plants: *"So we walked with him and when we got to 575 she said 'well you can continue up the hill and a bit further'"* (43). Most

workers, however, said they felt respected both within teams and by other workers or employers. Many also believed their employers thought they did good work, or as one woman said: *“Well at least never heard any complaints.”* (44).

Society and family

“Well, planting has always been a job for women” (45). Many women said planting was regarded as work for women and children and this meant that there was no reason anyone would object against their partitioning. However, some of the women working in pre-commercial thinning mentioned comments indicating surprise or opinions regarding the work as being too strenuous for them. One woman from Forsnäs described how people could react when she told them about her work *“‘Really, you work in the forest? Well, that’s interesting, don’t you get tired?’ It was much of those comments. ‘But it must be exhausting!’”* (46). Another woman said maybe people thought her a little strange for choosing to work in the forest, but she never heard anything negative.

A couple of women working in pre-commercial thinning explained comments and attitudes by forest work being male-dominated. As one of the women who worked in Lycksele said: *“I guess it wasn’t so common with women in the forest. It was men who were there, generally. But it was this work [color-marking] and planting... and such, during the summer. Otherwise it wasn’t common women’s-work, no.”* (47). Even so, most women knew other women who worked in the forest at different jobs, mostly planting or pre-commercial thinning. A couple of women stated that at that time everyone needed work to support themselves, hence it did not matter whether they were men, women or children.

A couple of women who had smaller children at this time described getting help with childcare from family, often mothers or grandmothers, while working. One woman explained: *“She [the daughter] stayed with her grandmother and grandfather. I got to borrow her for a while during the evening, and then she would go back and sleep at her grandmother’s.”* (48). Alongside working they had the responsibility of making sure their children were cared for.

The perception of forest work

Most women said forest work was regarded as a male profession, because more men worked in the forest and did what they considered was the heavy labor. Some also said work such as logging was not suitable for women due to its being too strenuous. However, a couple believed that even though logging was heavy work, work on the farm was also physically demanding, meaning that heavy work was not a problem for them. Furthermore, some believed that it was reasonable that it is mainly men who are mentioned in historical documentation of forest work, since it

was mainly men who worked in the forest. On the other hand, many said there were also a lot of women working in the forest. But the work women did, such as planting, barking logs or picking cones, as well as pre-commercial thinning, has not been regarded as having the same status as logging, nor seen as "real" forest work.



Figure 8. Nina Rönnholm, a day at work with pre-commercial thinning. Photo: Nina Rönnholm

Many women thought that the various jobs they did in the forest were important for forestry. They believed that even though men did the hard work of cutting down forests, the women made sure that new forests came up and managed existing forests. They felt they contributed to forestry.

3. Analysis and discussion

The women described in this study worked in the forest in northern Sweden on different types of manual work. Their narratives provide a detailed picture of how women experienced working in the overwhelmingly male forest sector in Sweden in the 20th century. What is unique, compared to other research focused on women in forestry, is the perspectives emerging from manual work. This is work traditionally considered to be masculine and, in some cases, very strenuous physical work (Johansson 1994), especially with respect to the 8 women who worked in logging. Earlier research about women in forestry in Sweden mostly concerned cooks in logging camps (Löfdahl 2018, Ojaniemi 1997; Östlund et al., 2020) or other work more indirectly connected with forestry, on farms and at home (Fiebranz 2004, 2010). As cooks, women entered the masculine and male-dominated working environment, but nevertheless did what was considered women's work.

3.1. Women in forestry - socio-economic development during the 20th century

In order to contextualize the social circumstances these women lived and worked in, I will briefly discuss the socio-economic context of the rural parts of northern Sweden in the mid-20th century. Until the 1960's, small farms and multi-function farming, with forest and agriculture, were still very common in this geographical area, while larger agricultural units were rare (Bäcklund 1988). To maintain an acceptable level of economic subsistence in this situation, or to improve their living standard, people relied on subsidiary incomes from seasonal work, often forest work (Bäcklund 1988). It was mainly men who did this work, during the winter season when the farms required less effort (Bäcklund 1988; Lundgren 1984).

About 1945 these very common small farms started to diminish in number in northern Sweden and by the 1970's multi-purpose farming had almost ceased; this happened much later compared to the south of Sweden (Bäcklund 1988). The dependence of family economies on small-scale agriculture lessened as it became easier to get full-time non-agrarian employment. The prolonged existence of the small farm was partly due to the security it offered the family economy in times

when there were few other work opportunities, especially work for women and in particular full-time work (Bäcklund 1988; Vallström 2010a).



Figure 9. Siv Burman working with pre-commercial thinning in Arjeplog. Photo: Nina Rönnholm

The increased opportunity for full-time work was predominantly for men. It is important to observe that women were still at home to a large extent, doing non-wage-generating work, even into the second half of the 20th century (Fiebranz 2004). The distribution between men and women regarding salaried- and non-salaried work clearly reflects the fact that traditionally the man was the breadwinner in the family during this time period (Fiebranz 2010; Jordansson & Lane 2017). This clarifies the conditions and norms relating to women's work, in this area and at this time, as their primary task was to care for home and children (ESM 5). It is important to consider the role of women at this time and their exclusion from paid work to fully understand how they perceived forest work. This also explains why they got certain types of forest work. Furthermore, I think it partly explains why women were not particularly present in forest work until the middle of the 20th century.

3.2. Women in forestry undergoing development, effectivization and modernization

Changes and modernization occurred in society as a whole as well as in forestry during the 20th century. In the first half of the century the forests and forest work were characterized by high-grading in the older forests, while clear-cutting and active regeneration were very limited (Ebeling 1959; Lundmark et al., 2013). Around the 1940's modern forestry, including large-scale clear-cutting, gradually became more prevalent in the northern inland region and by 1950 it was established as the standard forestry method (Ebeling 1959). As forestry was rationalized, the logged-over forests were clear-cut and replaced through active forest regeneration and management of younger faster-growing forests (Ebeling 1959; Lundmark et al., 2013). This rationalization resulted in large clear-cut areas becoming widespread over the northern landscape and thus an increased demand for people working in the management of these forests (Bäcklund 1988; Vallström 2010a). After a period of only logging, the new forestry approach created work opportunities for women too, in planting, pre-commercial thinning and other tasks (Ager 2014). In order to understand the opportunities for women in forestry it is, in my view, crucial to understand how fundamental this change was.

From the 1950's onwards there was also continuous migration from the rural, inland parts of northern Sweden to cities along the coast or to the central/southern parts of Sweden. This migration was driven primarily by the opportunities for getting better paid jobs in industry (Danell 1995). This in turn also affected forestry (Bäcklund 1988). Lack of forest workers led to workers being imported from other countries, such as Finland, but also led to higher salaries within the sector, better employment for the loggers and increased mechanization (Ager 2014; Andersson 2006; Bäcklund 1988; Ebeling 1959). These changes in forestry likely further contributed to the enhancement of work opportunities for women who were still living in the rural parts of northern Sweden, including logging. The logger who said that the benefit of the shortage of loggers was that she was welcomed with open arms points something out, namely that women and those otherwise considered less suitable are welcomed during times when there is a shortage of workers (de los Reyes 2000). It is possible that a lack of loggers also contributed to the establishment of test-groups for women in logging, described by two women. Reflecting my findings, it also appears women were more welcome in some, but not in all, fields. As many women described, planting was work for women and logging was work for men, and pre-commercial thinning was probably somewhere in between.

3.3. Norms, social values and women in Swedish forestry during the 20th century

Forest and forest work traditionally have a strong connotation of men and men's work (Ager 2014; Brandth & Haugen 1998; Reed 2003), especially logging (Johansson 1989, 1994; Reed 2003). This is also reflected in my findings. The strong association between forest work and masculinity described by Johansson (1994) is reflected in the women's perception of forest work, and their stories of resistance and social circumstances as well as their admission to the forest job market.

Among most of the 25 women I interviewed, the general perception of a forest worker is a man, even though they themselves also worked in the forest. This opinion was similar among the loggers as well as among the women who worked with pre-commercial thinning and planting. Reed (2003) suggests that norms and embedded social values associated with forest work diminish and inhibit women's positions in forestry. This contributes to women's actual presence being discounted, because they are not made visible (ESM 1). She also suggests that by adopting these norms women also do this to themselves, and thus undermine their own work and presence (Reed 2003). This has further implications since some women did not even count themselves as being "real" forest workers. It is further exemplified by the non-loggers who thought logging unsuitable, or not possible, for women. In contrast, the loggers generally disagreed, and additionally proved that women most definitely could do this heavy masculine work. They thereby challenged and rebutted existing presumptions against women being capable of forest work.

Social norms and ideas about differences between men and women seemingly created gender-segregation among types of forest work, where some were considered "male" and others "female" (ESM 1). Brandth & Haugen (1998) argue that recruiting women to different work from men contributes to there being a cultural barrier for women in forest occupations. Thus, the idea of gender differences divides professions, giving limited access for women and withholding structures. It can further influence how an individual enters a field of work that is traditionally affiliated with the other gender (Williams 1989, s 2). Hence, it was probably easier for women to get work in planting and pre-commercial thinning, as well as picture themselves in those occupations. I argue thus because although planting was work in the forest, it was seen as woman's work, much like cooking in loggers' camps (Löfdahl 2018; Östlund et al., 2020). Furthermore, women did not compete with men for these jobs, since men took other work, such as logging. de los Reyes (2000) points out that although women's salaried work increased during the post-war period, the norm was still men in the labor market. So, that

women broke into this male sphere of work was therefore quite impressive and ground-breaking, in comparison to other work they could perhaps have chosen, such as cleaning or administrative work.

My conclusion is that loggers met more barriers due to social structures and norms as they entered a masculine field of work to do what was traditionally considered to be a man's job. Agarwal (2001) looked into participatory exclusion in community forestry in South Asia and stated that when men's claim in a field is more strongly rooted there is more opposition to the inclusion of women. As planting and pre-commercial thinning were new occupations, unlike logging, it is possible that they were not so much claimed as male occupations and were thus more available for women and had less set male normative structures. This may explain why they met questioning but not the same resistance. I think it is important to highlight the stamina and vigor these women showed, in all occupations, but especially in logging, like the woman who, despite her family's attempts to stop her and several job rejections, eventually became a logger. Because they wanted to work in the forest, they questioned set structures that prevented them access. These women occupied space in a masculine sphere; they had to demand work and handle questioning just because of their choice of work.

3.4. Women in forestry – observations on different forest work

A common explanation of why women have not been present in forest work is that it is heavy and physically strenuous (Vallström 2010a; Johansson 1994). However, only a couple of the women expressed any opinions regarding the work being too heavy, and most of them worked in planting, often when young. It is technique, planning and keeping a "sharp tool" that is important, rather than being super strong physically, as has been demonstrated in other studies (Johansson 1994). The narratives of those I interviewed clearly go against the general perception of forest work, even logging, being too strenuous for women. My findings show that the narrative of forest work as too strenuous for women is a social construction, a myth, rather than a fact.



Figure 10. Annalisa Jonsson and Majlis Lestander, fixing a bush saw at work. Photo: Nina Rönnholm

If we look beyond forest work and consider traditional work performed by women in agrarian societies, they have long done hard work on farms, such as mowing, milking cows and carrying heavy buckets of water to wash clothes by hand (Fiebranz 2010; Ryd 2005). Many of the women I interviewed recounted hard work from a young age; why would they not be able to manage forest work? Simons (1987) states that the myth of weak women may exclude them from work in traditionally male-dominated professions. It is my conclusion that the very same myth has complicated women's access to forest work like logging. At the same time this myth has enhanced their ability to work in planting. Because the latter was less physically demanding it was considered suitable for women.

Among the women I interviewed, it was the loggers who described encountering the most resistance and incomprehension towards their work from other loggers and society. Several factors I have mentioned, like masculine association with logging (Johansson 1994; Reed 2003), presumptions of women's incapacity (Simons 1987), and social values and norms (Reed 2003; Brandth & Haugen 1998), are likely explanations. These factors probably contributed to the perception of work like

logging not being suitable, or possible, for women, both among women themselves and in public opinion. In contrast, women were accepted in planting because it was less controversial, and maybe more related to traditional work for women, such as gardening. Despite the resistance and incomprehension women were met with, many put great emphasis on the good atmosphere and cohesion at work. As Johansson (1994) states, there was also status attached to being a hard worker. As a woman proved her adequacy for the work, especially as a logger in a male team, it is possible that she was regarded less as a woman logger and more as a hard-working individual, and hence became a natural part of the group.

For many of the women, working in the forest gave a considerable sense of freedom and independence, which in turn gave strong personal satisfaction. Despite that norms and social structures existed, the forest also became a place where women were less controlled by them. They were free to create their own relation to work and identity. In the forest, they were on their own, clearly in contrast to the position of the housewife or agrarian woman as the never-resting woman (Johansson 1989, 1994; Ryd 2005).



Figure 11. Åsa Israelsson working with pre-commercial thinning in Sorsele. Photo: Bodil Stenlund

3.5. A broader perspective on women in forestry, in Sweden and internationally

From an international perspective women have not commonly been presented as working in the forest, at least not in northern temperate or boreal forests. The very limited literature in this field furthermore shows that when women have been

present they have often done what is traditionally considered women's work (Brashler 1991; Butler & Menzies 2000; Lind 1975; Krogstad 2003; Östlund et al., 2020). The women who did work in traditionally masculine forest occupations have been even fewer and also less well recognized (Pendergrass 1990; Walls & Zimpel 2000). It has probably also been so that when women have worked in the forest, their work has been less documented. This is comparable to the situation for women in the armed forces, as in the UK, where research is based solely on men's narratives due to the lack of information about and availability of women's experiences (Woodward 1998). But similar to the women loggers in Sweden, female pioneers working as forest rangers in North America in the late 1970 met obstacles due to what is described as "an old boys club" (Pendergrass, 1990, s 24). They were believed to lack the physical capacities needed for the work as well lacking courage. Hence, they had to prove themselves both physically and as being brave enough for the work. That women had to prove themselves and their capability more compared to men is probably common in many occupations that traditionally have been considered masculine or male. I think that their experiences accurately reflect experiences among women in logging in northern Sweden during the 20th century. Evidently similar patterns of divisions between men and women in forest work can be seen in more places than northern Sweden.

Earlier research also showed that women have been excluded from paid forest work when it is difficult to combine it with care of the home and children (Butler & Menzies 2000; Egan & Klausen 1998). Women's responsibility for household and children, restricting their participation in work, seems to be universal (Agarwal 2001). This could also explain the more accepted position of women in planting and pre-commercial thinning, seasonal work that would not compromise their work at home too much. The full-time employment of a logger was in contrast, and thus regarded as less suitable for women. When women are expected to work at home, this inevitably leads to their doing two jobs if they chose to work in the forest (Johansson 1994; Walls & Zimpel 2002).

Walls & Zimpel (2002) conclude that women who have worked in different roles in forestry or forest societies in north America are well aware of their work and its importance. This is also reflected in the narratives of the women I have interviewed; they know what work they have done, and they see the importance of it. Instead the problem of their invisibility lies in society, since their work is neither well described nor respected for its worth. By omitting women's work from forest history, we produce a biased picture (Bock & Garraio 1991; Walls & Zimpel 2002).

3.6. Women in forestry, historically and in the present day

According to my findings there is evidence that women have done a lot of work in the forests in northern Sweden, although it is rarely highlighted. An explanation for this is made visible in literature where work such as barking logs and pruning, done by women, is described as “help”, not as income-generating work (Vallström 2010a). Their "help" did not provide an income in itself but contributed to the man's paid work. Women's representation in Swedish forest history is further restricted because, historically, the types of employment where women are most likely to be found have not been considered to be “real” forest work, compared to logging (Reed 2003). Thus, the women's work has been neglected and forgotten due to the invisibility of their documented payrolls and employment records.



Figure 12. Viola Rönnholm, mother to Nina, barking logs in the forest. Source: Nina Rönnholm

The fact that women are not made visible in historical documentation contributes to women, even today, not feeling “at home” in occupations that are regarded as male occupations. This also becomes a form of collective oblivion that must be corrected (Lerner 1997). That can only be done by respecting women’s stories and work and documenting and displaying them to the profession and to the public (Lerner 1997. S 211; Walls & Zimpel 2002).

The fact that these pioneer women took existing jobs and demanded work in the forest has probably contributed to women today being more common in forest work and the forestry industry. However, notions still exist that men are better suited and have better skills when it comes to forestry (Ager 2014; Johansson 1994; Johansson & Ringblom 2017). Brandth & Haugen (2005) believe that the strong masculine correlation with forestry has gone from being associated with a logger in the past to a machine operator or "business man", a man with organizational and leadership qualities, in modern times. Although these characteristics have nothing to do with physical attributes, they are still assigned to men. The historical process that has created different places for women and men in the division of labor thus continues to persist and favor men (cf. de Los Reyes 2000; Reed 2008). Present day problems in the forest sector in Sweden related to gender-segregation, sexist attitudes and even sexual harassment (Johansson et al., 2018; Lidestav & Sjölander 2007) may also be linked to the neglect of, and lack of respect towards, women in forestry historically and today.

The consequences of not highlighting women in logging, and other forest work, reproduce the narrative that there were only men in the forest (cf. Reed 2008). This also reinforces the image of forest work as something that only men did and managed, despite this clearly being inaccurate, both practically and theoretically. These women have proven the opposite and their work has probably opened many eyes, as well as doors for women into forestry today.

4. Concluding remarks

My first conclusion from this research is that women did not traditionally belong in forest work, especially not as a logger, a job traditionally considered to be male. Due to resistance and challenges women had to have determination as well as standing up for their choice, as in other occupations seen as male work. Working in the forest also gave women a sense of freedom and contributed to their personal satisfaction. They proved themselves, and others, they could do this work just as well as a man could. The phasing out of small farms and the rationalization of forestry with large clear-cut areas in northern Sweden contributed to the introduction and establishment of woman workers in the forest.

The neglect of women and their perspectives results in inaccurate historical documentation and contributes to women's role and their importance in history being forgotten. It further contributes to the reinforcement of forestry, in terms of both competence and labour, being considered best suited for men. This can further affect women's attitude toward working within the forest industry today as well as the recruitment of women to this industry. There is more to discover regarding women's work in forestry, their experiences and life situations (ESM 6). Finally, my findings show that women, regardless of the male myth around forest work, are just as suitable, able and skilled to perform manual forest labour as anyone else.

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Appendix 1

Inledande frågor

Namn:

Ålder (Född):

Bor idag:

Var växte du upp?

[vart låg det? glesbygd, nära jobb, avstånd till affär, bor du kvar?]

Kan du berätta om din uppväxt? Kan du berätta om dig själv?

[familj - Vad gjorde dina föräldrar? – arbetade med? Har du syskon? Gick ni i skola?] [sysselsättning, barndom, gott ställt, ekonomisk situation, de andra barnen]

Vad gjorde du senare, du slutat jobba i skogen?

1. Arbetet – arbetsform, arbetstid, arbetsförhållanden

Vad för arbete har du gjort i skogen?

[Kan du berätta om det arbetet?

Vad, arbetsuppgifter, var]

Hur såg en arbetsdag ut?

[Arbetstider, antal timmar (när åkte man ut/kom hem), dagar i veckan, lediga dagar

”Normal arbetsdag”, raster under arbetsdagen? Självständigt arbete? När åt man/vad?

”Hur såg landskapet/terrängen ut som ni arbetade i?”]

Vad har du för arbetskläder?

[bekväma, lätta att arbeta i? Var kläderna du hade optimala för arbetet? Dvs. Blev kläderna nötta/blöta, ”Var kom arbetskläderna ifrån?” -egna/från företaget]

Vilken typ av redskap använde du?

[Hur fungerade dem? Förändrades de med tiden? Lätthanterliga, tunga, hur bar man med dem/ hur kom de ut till platsen? Var hade man redskapen då man inte jobbade]

Hur tog du dig till jobbet?

[egen hand, med någon, vem, upphämtning, var det långt till jobbet från där du bodde?]

Hur länge arbetade du med skogsarbete?

[ålder vid start (årtal) / slut, **varför slutade du** (årtal)? Hade du något uppehåll? varför]

Krävdes någon utbildning?

Vart gick du den? Hur länge? Hur var det?

Kan du berätta om levnadsförhållanden ni arbetade i?

[Boende - Hur bodde ni? Bodde ni hemma eller i koja? Kojans standard, Bodde alla tillsammans? (Om de bodde i huggarkoja -Vem lagade maten? Hur sov ni? Separat för män/kvinnor?)

Matlagning – Vem lagade maten? Vad åt ni?

Tvättmöjligheter – Vad hade ni för tvättmöjligheter? (**EV**: hur fungerade de med personlig hygien med tanke på att vara kvinna]

Kan du berätta vad du tyckte om arbetet?

[Vad upplevde du arbetet? Hur kändes det? tungt/lätt, kul/tråkigt, krävande, hur var det rent fysisk? ”Hur var känslan inför en jobbdag? (motiverande?)]

Vad skulle du beskriva var det roliga med arbetet?

[Varför? Resp. det tråkigare. Sällskap, sysslan i sig, miljön, orättvisor]

Berätta om hur ett år såg ut när du jobbade med XX?

[Arbetade du **säsongvis**? Vilka tider om året, **Olika arbetsuppgifter**]

Om röjning: vilka skogar röjdes? Åt vem røjde ni?

Om plantering: Var det markberett? Vilken typ av plantor? (Barrot, paper-pot, andra) Var dem behandlade med något (t.ex. gift)? Hur många plantor satte du per dag?

2. Varför tog kvinnor arbeten i skogen – drivkrafter bakom?

Kan du berätta hur det kom sig att du började arbeta med XX (el. i skogen)?

[hur gick anställningen till? eget initiativ, slumpen, någon som bestämde åt dig? Information om jobbet, hade du andra alternativ; vad var det?, ”skulle du säga att

det var du själv som valde att börja jobba” ”hade du länge velat jobba inom skogen]

”Var det något du hade velat jobba med som liten?”, ”hade du något drömyrke?” Vilket? Varför blev du inte det/blev du det?]

Blev alla anställa på samma sätt?

[skillnader mellan män/ kvinnor, villkor, arbetsintervjuer, **förkunskaper**, kontrakt, betalning]

Vem anställde dig?

[entreprenör, markägaren]

Hur fick du betalt?

[Vem betalade lön? Tjänade alla lika, ackord/ fast lön/månadslön, ”När fick du lönen?”, ”var det alltid samma lönesättning?”]

3. Hur var det för kvinnor att arbeta i skogen och hur har det påverkat dem?

Kan du berätta om hur arbetslaget fungerade och vilka som arbetade med dig?

[enskilt, i lag, stämning, hierarki, majoritet män/ kvinnor? Unga/ äldre, flera/ ensam, vilka var människorna som arbetade med dig?]

Hur kände du som kvinna att arbeta med det skogsjobbet?

[bemötande, skillnad mellan män/kvinnor, behandlades]

Kände du dig respekterad?

[”Tror du att det var just du som fick den här respekten eller tror du att kvinnor överlag fick samma respekt?”]

Tycker du att skogsarbetet har haft betydelse för dig?

[På vilket sätt? Har det varit viktigt för dig? Då vs. Senare i livet, moralmässigt, självförtroendet, mentalt, ”Har arbetet påverkat dig? ”, Kroppsligt/ socialt]

Har pengarna du tjänade haft betydelse för dig?

[pengarnas betydelse, vad gick dem till - köptes något, sparade du, ”minns du om du använde pengarna till något särskilt?”]

Hur skiljde sig skogsarbetet du gjorde från andra kvinnors arbeten på den tiden?

[vad fanns för alternativ? ”Var det vanligt att kvinnor tog jobb som ditt?”]

Skiljde sig lönen du fick i förhållande till andra kvinnors avlöning från andra arbeten?

[om de hade andra jobb, vad arbetade de med?]

Hur såg du på arbetet du gjorde?

[Tycker du att du gjorde ett viktigt jobb? Var det viktigt för samhället i stort/
skogsbruket]

Vad tyckte dina föräldrar om att du arbetade i skogen?

Hur tror du att ditt arbete i skogen värderades av din arbetsgivare/ av skogsbruket i stort?

[Alt: ”Tror du att det jobbet du utförde i skogen var högt värderat av din arbetsgivare/ skogsbruket ”I jämförelse med de skogliga jobb män gjorde?” vad tror du att det beror på?]

Hur tror du att övriga i samhället såg på att du som kvinna utförde arbetet?”

[värderade] förtydligande fråga)

Mötte du någonsin något motstånd?

[från vem? Varför?]

Vad gjorde du sedan du slutade? Varför slutade du?

Övriga avslutande frågor

Hur ser du tillbaka på det arbetet och livet som var då, idag? [pengar, sällskapet, stämning]

Har du något speciellt minne som du skulle vilja dela med dig av?

Känner du någon annan kvinna som arbetade med samma som dig (eller annat skogligt arbete) och som du tror skulle vara intresserad av att berätta om det för mig?

”Jag har en avslutande fråga innan vi är klara” Jag har fått uppfattningen att man inte ser på det skogsarbete som kvinnor har gjort som en del av skogligt arbete, av skogsbruket historiskt, vad tänker du om det? Vad är din egen uppfattning / Vad tycker du?

[tror du att många kvinnor jobbat med skogligt arbete även om det inte talas om, t.ex. röjning, plantering, hjälpt sin pappa med körning, annat sätt möjliggjort mäns arbete].

Är det något annat som du tänker att jag borde ta med mig från vårt möte som jag inte har frågat om?

[motiverande, arbetssång, anekdot]

Det finns inte några fotografier från när du arbetade i skogen? Eller annan dokumentation som dagbok eller tidningsurklipp som jag kan få ta del av?

Appendix 2

Original quotes in Swedish (fat text marks a quote within its original longer context from the interview)

(1) Nej, neej. Nej jag tror ju det att vi har växt upp på det viset. Vi har ju fått göra både säg, tjej och killjobb. **Och många som då var i min ålder kommer ju från ställen där dom haft landbruk å där man har fått hjälpa till.** Det var inte så... ”killigt” och ”tjejigt” då

(2) Nej det fanns ju inte, det var ju lite för alla. Å potatisgräven... **då hade vi lov i september på den tiden som hette potatislov. Och det var ju för att det var ett bondesamhälle, då skulle man ju hjälpa till med potatisen.** Och du vet det var ju inte fyra fårer utan det var ju en fotbollsplan var väl det närmaste. För du vet folk levde ju mycket på potatis.

(3) Jag var ju utskriven. För då ja börja hade jag ingen möjlighet, jag kunne inte gå, ja fick inte gå ut sexan skola. Det var sex år folkskola på den tiden. Men ja fick inte gå femman för ja va, det var ingen mening å börj åt hösten. Doktorn i Junsele på karteten (?), han sa de **”Ja ska tala om för di”, Ja ville ju gå ut skola färdigt, ”Ja ska tala om för lilla fröken” sa han ”att den som inte har nån hälsa behöver inga kunskaper”**

(4) Jaa sommaren började det med plantering. Ja det var många somrar jag gick. Och sen så blev det röjning. Och en vinter då gjorde vi, vad heter de, stamkvistning. **Och sedan sista vintern då hade de kommit på att de skulle ha en försöksgrupp kvinnor som skulle hugga timmer. Och jag var ju då – skrattar – ”Ja tack!”.**

(5) Och det var ju för att jag skulle bli skogstekniker så då var jag tvungen att göra praktik inom avverkning. Och då gick jag ju till min gamla kronjägare här i Vilhelmina och fråga om jag kunde få jobba med avverkning ”ja men” det sa han ”du va bra, du får vara med å hugga”.

(6) Så då börja jag å hjälpa mig... då var jag ju 14, då jag for hem och börja me... men jag gatt ju försök å börja, börja å försörja mig så börja ju först på att mjölka kor och så var jag ute i skogen och plocka kott. Numera så görs ju det maskinellt också som allting annat. Men jag plocka kott om våarna. Och då börja-ja på å sätt me in i hur det gick till. Så då bruka ja gå å lån svansen, den va, den var sågen vi såg me, han[d]såga. **Då bruka ja låna på ena huggarn en såg och lära, och börja lära mig å såg ner.** Å så börja ja, gick till en annen å hade han till å lära mig... avmätta. **Och så gick ji mella arbetara och tog en liten stånd på dom och lärde mig en sak, på var o en.** Och så kom jag till nästa, till vår... en ny

huggar å. Och så gick ja imellan dem och lärde mi. **Så då je var 18 år då högg, då hugg jag timmre åt morfar min, en stämpling. På egen han[d]. Och sen, börja jag jobba för SCA.**

(7) Att hugga timmer...? Njee, alltså jag hade nog tyckt att det blivit för... vad ska jag säga, ensidigt... det är ju samma sak hela tiden. Och det är klart det här med arbetsmiljön, **jag var ju noga med min hälsa. Det här att du står i avgaser, vibrationerna...** alltså kroppen, inte de... jag vart jättetränad å jag klara av de, inte de att jag skulle känna det blev för tungsam, inte de. Utan arbetsmiljön du hade som skogshuggare... alltså den skulle jag inte vilja ha. Du utsätt dig för mycket gaser. Du vet på vintern när du ska gräva en grop, du var tvungen å hade en spade, ner å gräva en grop och så skulle du ned med motorsågen i den där gropen och du vet det var ju avgaser nåt så hemskt.

(8) [...] Men då sku dem ju sluta med huggarna -93. Så att då, då vart alla huggare uppsagda.

(9) [...] jag bestämde mig på skogsbruksskolan att i en maskin ska jag ABSOLUT inte sitta.

(10) Nä, intresserad, det var ju int å vara intresserad, det var ju te så se till så man fick sig nå yrke

(11) Jaa, jag trivdes hela tiden, med själva arbetet. För jag tycker om att vara i skogen, jag tycker om å arbeta med kroppen. Så att det syns vad man har gjort. Det är en sån tillfredsställelse när man går hem, på kvällen, å ser ”Ja, mm det här har jag gjort idag”.

(12) Jodå i kojan. Jo, ås luta vi ikull oss på väggbritsen [skrattar lite]. Det var skönt. Då låg man där o lyssna på... alltid vare nån som berätta nånting eller prata nåt, sådär lågt å bra. Det var skönt

(13) Joo. Det kan man ju säga. För det är ju alla storlekar på karlarna

(14) Det var bara att anpassa sig efter det när man inte hade den figuren. Det var norm. Tunga grejer, huggarstövlarna var supertunga. Regnkläderna vi hade var jättetjocka, stängde in all svett för de var så täta och då blev de ju tunga och blöta.

(15) Jaa, ja De vär bare till 57 då hade jag være å köpt mig en motorsåg. Man behövde inga motorsågs-körkort på den tidn. Man behövde inte lära sig heller.

(16) ”Tekniken var mycket viktig, man var tvungna att kunna tekniken för att det skulle gå bra, planera fällningen. Så att det var tungt var inte största problemet. Om det var nån stock som var väldigt tung kunde skotarna ta han om den också”

(17) Så tror jag att det är en tillfredsställelse att ”jag kan jag också, fast jag är kvinna så är jag lika bra som er ”haha”.

(18) Jää.. Det fanns ju nog bädde delar. Det är ju som jag säg. Man gatt ju ha, man gatt ju skaffa si möjlighet att, att stå för se sjölv. Att här står jag. Jag flyttar mig inte

(19) Jo det var ju bara karlar. Så att no vare då, man vet ju inte, men dom uppförde dig då så bra så aldri var de någon som ifrågasatte att.. Men man had väl nästan småjobbat med en del av dom. Innan, bara på sommarjobb å sådär.

(20) Jaa jag har känt de som jag var en av dom. Och jag tycker om att vara i skogen, det är ju det också.

(21) Haha alltså en utav karlarna, det var en farbror till mig. Han var så fly förbannat, att kvinnor sku - måste va i skogen! Ja men han vare små träd men stor jäkla träda! Han var då inte nöjd, nej. Han sa då till skogskonsulenten att dem skull då veta hut!

(22) Hade dem tjuv vari.. å märkt om hygga, så de komme på mitt hygge. Jag hade ju inte annat göra, då de stod på mitt, min skiftesområde, jag gatt ju å hugg. Jag hugg dem.... där. Där mens jag hugg dem tre tallar då tjänte jag hemskt dåligt. Meen, då jag huggt dem där då vart de ju vanlig skog och då vart det ju bra igen. De var ju så man fick dem ju som betala (?) å lär sig me de.

(23) Så då klistra dom hela kojan med nakna fruntimmer å såhära å la fram såna tidningar å... Men då kom det en farbror som sku jobba. Han hade blivi arbetslös, han var nog nästan 60, en liten gubbe från Fagerheden, å sa ”Men pojke, vo håll je på me?”. Å du vet jag blev ju så rörd. Å ba ned med alltihopa sådär.

(24) Å då... det tyckte jag väl var lite tråkigt, det minns jag särskilt då att det var nån som sa att ryktet gick att alla gubbarna på Domänverket måste vara riktigt slö om det kan komma en tjej å hugga lika mycket som dom ungefär så...

(25) Njaa... jag vet inte. Det förändrades ju aldrig, mamma och pappa och mina syskon och så, dom tyckte ju hela tiden att man gjorde fel.

(26) haha aaa det var ju en bra fråga. Ehh... hur ska jag säga. Jaa, såhär vare nog, att jag sökte många jobb, det behövdes huggare det visste ja. Det var många som sa nej, men nej tyvärr och det var nån som sa nej men tyvärr, vi har aldrig anställt en kvinna... och det var ju samma sak med kronojägaren i Korpilombolo, Arne Alltilla hette han. Och när jag då sökte jobb, så jag hade blivit lite... lite, lite störd över hur svårt kan det var. Och när Arne sa att: Nää, nää det går nog inte. Vi har aldrig haft nån kvinna på vår arbetsplats... nej det var besvärligt... och då tände jag till och då sa ja ”Det var då märkligt alltså...”. I klassen då jag gick då på

skogsbruksskola ås hade jag ett resultat som var bland dom bästa i klassen. Det var ju också sådär att ja men hur mycket mna hugger och man fick ju mäta upp sig och hej å. **Och då blev jag förbannad å då sa att "Nej men nu jäklar" att det här är ju bedrövtligt, hur det är går till och äre bara för att jag är kvinna som jag inte kan få jobb så äre ju under all kritig, ja jag tände till. Och då blev han nog lite förskräckt och sa han: "ja vi kan ändå prova och se hur det går", lite sådär.** Så att det var nästan... Ja men på grund utav att jag explodera, för att man blev förbaskat. Å han visste ju själv, nej men att det var ju det som hade gjort att jamen, jag fick inte jobb. Trots att jag visste att jag kan göra det så bra och att det skulle blir bra. Å så fick jag inte ens försöka för att jag var kvinna. Men jag tycker att det var eloge till honom att han vågade prova trots att det var lite extraordinärt.

(27) Joo. För doktorn, **gubbarna sa ju, att jamen när man börja va där så att de syntes, "nu tycker vi att du sluta för det är ju farligt".** Så då sa jag det åt doktorn, då titta han bara på mig och sa **"Det är faktiskt ingen sjukdom å vara gravid". "Ah okej" sa jag då, så då högg jag så länge det gick [skrattar].** Men den sista, jag tror det var den sista graviditeten, jag minns inte. Då skulle jag fälla en stor, stor asp och så var det ganska mycket snö så jag såg inte att det var en sten, framför de jag skulle fälla där. Å när det sprätta upp då var den såhär från magen (visar på nån meter). Och då gick jag till doktorn och sa "nu", för man fick ju havandeskapspenning en månad innan eller nå såntdär. Ja sa "nu kan inte ja jobba, för nu höll ett träd på ta hela bejbisen", "Jaja" (doktorn). Så då fick jag va ledig en månad innan [skrattar].

(28) Ja men det är väl lite typiskt, liksom att kvinnornas insatser inte har räknats. Jag menar, dem här som var kockor, i skogskojorna. Vad tror du det var för arbete? Det var väl minst lika krävande som det hära huggande sku ja... ja men eller hur. Men visst jag tror att förr i tiden fanns det kvinnliga huggare också

(29) Jag var då i första planteringen året jag gifte mig, både jag och Alf vari planteringen där, däna bort.

(30) Ja du, det var väl inte sådär hemskt mycket annat att göra då, det var ju inte sådär väldans mycket jobba att få, utan det gällde ju att ta vad man fick...

(31) Man ringde ju och anmälde sig och sen fick man reda på när man skulle börja...

(32) Ja he va bara nåt år efteråt. Då fick jag erbjudande av min kusin, Linnea Burman. Det var hon som var i skogsröjningslget som Elsy var i. Hon ringde till ja å sa att hon hade pratat med kronjägarn å sagt att det fanns en till som kunde va me å röj

(33) Ja men jag hade jobbat i skogen så mycket, med planteringen här. Å så att det behövdes röjare helt enkelt. Å så tyckte jag om å vara i skogen, jag fick gratiskläder... och så sku vi få lära oss å röj då av en gammal skogsarbetare. Så då gick jag som en röjarkurs med han,

(34) Jo men vissa gånger var det jävligt jobbigt och andra gånger var det ju huur roligt som helst! **Det berodde ju mycket på arbetskompisarna eller vilka man hade med sig.** För ibland var det ju blandat med både pojkar och jäntor. Och det fanns ju äldre kvinnor med också. För det var ju många kvinnfolk här på byn som var med. Och dem kanske var en 10–15 år äldre än jag. Ja he va

(35) Ja men det var det där, ja men alltså **det var någonting skapande över det. Speciellt ungskogsröjning naturligtvis. Man gjorde ju.... man skapade framtidens bestånd helt enkelt. Å det var intressant**

(36) **Nej men en skogskoja, som kanske tidigare karlarna som fällt skog hade bott i.** Där fanns ett kök och ett litet rum, å det var ju säkert om de haft nån kocka nån gång. Annars var det ett stort rum och där låg vi allihopa. He var, få se.... det var fem nedrebäddar och så fanns det på nån en övre bädd. Och så eldad vi ju med ved i järnspisen för det fanns ju ingen ström där.

(37) **Nej det fanns inte på kartan! Nej... gud nej. [...] Jaa. Ja jag hade väl en klänning.** Det fanns inga långbyxor heller. Jaa. Men om du tittar på gamla foton. Jättegamla foton. Då får du se dom går i långkjolar eller klänning. Du ser ingen med nå långbyxor... **och det var heller inte modernt att kvinnor skulle ha långbyxor. Det var väl syndigt.** Eller hur det kunde vara... jag vet inte.

(38) Ja, hehe... (skrattar till lite) vi fick ju ofta, de var ju ofta rätt stor, vi bruk ju få någon blus en sådan där orange, men byxen och sånt det håll man i regel själv, **för det fanns ju i regel inte så mycket kvinnokläder, och det syntes ju ganska roligt för allt var ju i regel för stort...**

(39) ... Å ibland fick man ju sitta några timmer och mixter med sågen där då. Annars var det så att om en såg gick sönder så kom dem ju och tog hand om dom

(40) Jaa men he var väl... då var man ju ung så he ä, brydd man sig väl aldrig om. He var väl tungt, he vare men det var ju tyngre då man börja ve röjsåga. Ja he var ju sämre. Men he gick ju bra he å

(41) Jaa det gav ju bra med pengar. På kort sikt alltså. För man var ju..., kort men intensivt. Så det var väl därför man var med på ne. Men det var ju tungt, mycke mycket tungt vare ju. Dels skul man ju då ha den där hackan, så skulle man bära ut plantor själv.

(42) He var nog kamratskapen egentligen. He var väl jätteviktigt egentligen. Och, nej men he... men också var det ju upplevelser

(43) Det var ju bara mata på, hela dagen. Och då var det en gång, vi var som 4 här och 4 där borta. Då sa en tjej att vår chef hade sagt att "ni fuskar" jag och hon då. Jag sa ingenting, jag tänkte bara såhär då men hon som var med mej då, då han kom en morgon då sa hon "du ska gå med mej idag" men vadå" "ja du har sprungit dit bort och sagt att vi fuskat och nu ska du gå med mig, vi ska räkna varenda planta från igår" för han hade väl sagt någonting som "ja men sådär mycketkan de inte sätta dom måste ha grävt ned dom nånstans". **Så vi gick ju med honom och när vi kom då 575 så sa hon "ja du kan fortsätta upp dit i backen och en bit över" sa hon.**

(44) Vi fick då inte nå klagomål

(45) Jadå. Plantering ha alltid vare kvinnojobb.

(46) Ja du jag vet inte, jag hörde då aldrig att det skulle vara någonting. "Jaså jobba du i skogen, jaha, men va intressant, men bli du inte trött?". He var ju mycket det dära "Men det måste ju vara jobbigt!".

(47) Ja men he var ju inte nå vanligt att kvinnor var i skogen. Det var ju gubbar som var där i regel. Men det var ju just det här arbetet som, och så då plantering och sånt på sommarn. Annars vare inte nåt vanligt kvinnogöra inte.

(48) Gisela hon bodde hos morfar och mormor. Jag fick låna henne en stund på kvällen. För då skulle hon tillbaks och sova hos mormor. För då slapp hon ju stiga upp tidigt på morgonen.

Electronic supplementary material (ESM)

ESM 1. Abridged framework for the gender perspective and related to previous studies

The term gender refers to the socially constructed characteristics with the male and female sex (WHO 2021). Here I use gender to analyze structures and to contextualize narratives from women who did forest work in northern Sweden. Gendering can be described as a process in which biological and physical differences between men and women are turned into separate social and cultural identities (Baron 1991). Gender is not static and can change over time, as well as it varies between different societies. It is recreated every day via interactions through social and working cultures, which in turn sets normative rules and values in a workplace. By clearly dividing work in society according to gender, biological differences between men and women are used as motives to enable social separation, which in turn is used to divide occupations, as Egan & Klausen (1998) displayed regarding women in Port Alberni. A theoretical basis for my study has been how women in general have been treated in historical and forestry research. Although much focus is on men in forest research women are also briefly presented in research on logging camps and forest work (Johansson 1989, 1994; Vallström 2010). Johansson (1994) described the forest as a possible area for gender intersect where women could enter the male sphere to some extent. Social and physical environments described in other research can also be used to contextualize women's roles in forest work.

Forestry and many other industry occupations, such as mining and fishing, have been seen as male “preserves” and are almost exclusively narrated from men's perspectives. Forest work also have strong connotations to masculinity (Johansson 1994). This has been brought up and discussed in several articles regarding different aspects of forestry (Brandth & Haugen 1998; Lidestav & Sjölander 2007; Reed 2003). Masculinity is, likewise gender, a social constructed characteristic and is associated to different attributes that are generally assigned to men. I use the term masculinity to explain why women's presence in certain work creates more resistance compared to others. Furthermore, I use masculinity to understand women's typical invisibility in documentation and research regarding forest work. Cambell & Bell (2000) analyse rural masculinity in a review article and states that masculinity can turn invisible because it is normative. It is so mainstream that it goes unrecognised and unmarked, and in turn also make women invisible in certain spheres. They bring up an example with farmers, who are often constructed as “him”, and writes that women who have had a central role in agriculture, thus become invisible (Cambell & Bell 2000). This is something that Fiebranz (2010) also reflects on in her article regarding farm labour and salary-work. Additionally, Vallström (2010) point out that women who worked in the forest with work considered masculine, such as logging, could be referred to as “him”. Consequently, these women were actually seen as men when working, which also clearly contributes to women's invisibility in prior research and documentation (Vallström 2010).

ESM. 2. Aspects on materials and methods

Interviews

Here I want to provide more details on the methods used and some important methodological aspects. Of the 25 interviews, 18 were conducted in person. Personal meetings at locations where informants feel comfortable, as well as where disturbances are minimized, is important to provide the best conditions for the interview (Atkinson 2017; Holme & Solvang 1997). Before the interviews I contacted all informants at least once and often by telephone. I did so to introduce myself, inform about my research and plan for the interview. Additionally, I asked them about what work they had done. By doing so I could adjust the template-questions to the specific work they had done. Before the interviews started the informants were briefed on the background and purpose of the study. Thereby they knew what they agreed to participate in and had some time to prepare before the interview. From an ethical point of view this is of course very important (Atkinson 2017; Holme & Solvang 1997). It is important since they have participated on these interviews voluntary and thus should be able to decide which information, they chose to trust me with (Holme & Solvang 1997).

All my template questions were broad and open-ended to allow natural development of discussion and help the person being interviewed to reflect and deepen their narrative (Holme & Solvang 1997), and also to allow the informants to speak freely with the aim to get their opinions, attitudes and feelings. I also avoided any directed questions, such as “Was the heavy work not strenuous on you?”, since that could affect how the respondent answered (Ryen 2004). I rather asked, “How did the work feel physically?”. I also started all interviews with simpler questions regarding general information and their background. I did this to make the interview more like a conversation with the purpose to make the informant feel more comfortable (Ryen 2004). At the end of the interviews I asked the women of their general perception of what a forest worker is and who are a forest worker. I also asked them of their overall opinion regarding narratives of women in forest history.

Perspectives on the method for analysis

In comparison to the inductive approach I have used, a deductive approach derives findings and themes from the data by assigning it a predetermined framework or structure (Williams et al., 2004). Basically, the researcher imposes their own theories or codes on the data to analyze it. This approach is useful when researchers have specific problems they want to have answered or are already aware of probable answers (Williams et al., 2004). However, there is a risk that other important themes might be neglected in the process.

Instead of conductive coding I used a method of inductive coding, thematic content analysis. It is a commonly used method for analyzing data (Pope et al., 2000; Richie et al., 2004), where themes from the transcript text is extracted by analyzing sentences and words. To do this I did repeated reading of my transcripts and took notes in the margin of words or sentences that represented what the informants said. After that I re-read transcript with these notes and compared among interviews, a process called constant comparison (Glaser 1965; Pope et al., 2000). I did this to compare and confirm information to transform these into representative themes and categories that

I used to build my results. This method is very time-consuming but as it is also very inclusive and result in nuanced findings (Pope et al., 2000). Therefore, it is a suitable method for this kind of research, because it allows a lot of information to be included.

Thematic content analysis is based on grounded theory, which means theory derived from data, that was systematically gathered and analyzed (Strauss & Corbin 1990). Instead of applying a hypothesis or testing theories on the data, the theories are developed from and grounded on the empirical research (Strauss & Corbin 1990). Thematic content analysis is a continuous process where data collection, analysis and theory are intertwined. The theory emerges from the gathered information and does not start with a predetermined theory (Williams et al., 2004). Hence, this method is likely to offer insight in the material for a successful path to the relevant and interesting findings (Strauss & Corbin 1998).

Discussing materials and methods chosen for this research

It has been challenging to compare my findings to similar research since there is very limited research on this topic. Most research and literature deals with forestry cooks or, as has been explained earlier, is about logging or forest work from a male perspective.

Credibility, validity and representativeness from the perspective of qualitative research and analysis

Since this study is based on grounded theory, and data has been analyzed in an iterative process, I argue that representativeness has been checked, and in a matter suitable for qualitative research (Munhall & Boyd 1993). By reading the transcripts repeatedly as well as comparing data items such as citations and themes, the most representative data will translate into the main findings. I further argue that the validations and comparisons between informant's information also provide a basis for validation and credibility (Munhall & Boyd 1993). Compared to quantitative data, qualitative data is more difficult to check regarding validity, credibility and representativeness. The description of the methods I used to gather and analyze data is supposed to establish credibility and validity to the findings and give the reader insight to my process (Cutcliff & McKenna 1999).

It could be argued that another researcher also should have done the same coding process to interpret data and identify themes/categories, in order to check credibility. However, two different researchers would probably interpret data in different ways and end with different themes (Munhall & Boyd 1993). This would be especially true if one has been involved in every stage of the research and the other one not. It's further important to understand that results and analysis always involves the researcher and will therefore never be 100 % objective. Hence, it will be affected by the person interpreting the material. Therefore, it's important for the researcher to be familiar with the information shared in the interviews; what did the informant mean and think, to not misrepresent results (Bernard 2006). Since I have contacted and interviewed all women for this study it is reasonable to suppose I have more understanding for the information they have shared compared to an extern person, and thus I was better suited to interpret data.

As a researcher it is always important to minimize bias and remain objective. It is important to identify potential bias related to theoretical framework of the study and the specific method used.

My study is based on qualitative interviews and based on grounded theory. Compared to quantitative research, where focus is on representation and significance, qualitative research enables the researcher to delve into a large amount of information gained from a few sources (Bernard 2006). The goal is to enhance understanding of, and reflect the individual's experience, as well as understand opinions and views about their life and work experience. This study is one of the first of this kind in northern Sweden, but 25 interviewed women are just a minor part of all the women that have worked in the forest. There are hundreds of narratives to investigate on this subject, especially regarding women in pre-commercial thinning and planting and other management work. However, the number of women loggers are probably not equally extensive, especially those who worked before the chainsaw was introduced, but I am certain that they do exist.

ESM 3. Abridged classification

Loggers

The logger's answers are classified to words as following:

0-25 % = 0-2 = a couple

26-50 % = 2-3 = some/ a few

51-75 % = 4-5 = several/ many

76 – 99 % = 6-7 = most

100 % = 8 = all

Pre-commercial thinning, planting and other forest work

The forest workers answers are classified to words as following:

0-25 % = 0-6 = a couple

26-50 % = 7-12 = some/ a few

51-75 % = 13-19 = several/ many

76 – 99 % = 19-24 = most

100 % = 25 = all

ESM 4. Background, economy and money-making perspectives of the interviewed women

Since many of the women grew up in a rural society in the interior of northern Sweden, many had grandfathers and fathers who worked as loggers. Meanwhile, their mothers and grandmothers often did the work at home, on the farm and in the household. Some, mainly younger women, also had mothers who did wage-work, such as administrative work or working with child-care, care of elderly or cleaning. Furthermore, some also had mothers who did seasonal work in the forest with picking cones to sell for processing during the winter, bark logs, picking berries or work with planting seedlings on clear-cuts during the summer season. One woman in Arjeplog told me of her mother who brought her as a baby on a sledge and skied around to pick cones during the spring. Her sister who was a little older, but still a young girl, also had to come along on skis. This was something several women did in order to contribute to the family economy. Her mother and her sister had also worked with her father to the forest to bark the trees he felled. The logger who worked in Piteå municipality had a mother who worked on a sawmill. She described work in the sawmill to have been thought on her mother because it had not been a very friendly environment for a woman. Other workers, who mainly were men, had been against her presence. Most of the interviewed women described a society and way of life growing up, where everyone, man, women and child, had to work to contribute to household and living. There was a strong working-culture in this society. This is very much in line with descriptions of the work ethics in rural Sweden described by Johansson (1989; 1994).

Aspects of salary and economy

Of the eight loggers, three worked and got paid on piecework basis. The others had a fixed salary, either monthly, day based, or hour based. One logger only had accord for about two years before the forest workers strike in -75, after that she and her companions also got fixed salary, at least for a while and then came a combination of fixed salary with a bonus system. She told me that at a meeting during the strike when they negotiated logger's salary, the union representative there had told the loggers that they should approve (*"only had to say yes"*) the proposal from the employers but that she had protested, she said: *"So I put my hand in the air and said 'We only have to say no'. And an old man who was there said 'there is only one woman here, but she is saying what we all think'"* (1). Most of the loggers thought their salary was fair and good, regardless having worked on accord or with a fixed salary. As one logger said:

Well maybe one had the thought that... I didn't cut as much as them. But well... I never know that I was questioned either... I think people liked it pretty good. They didn't need to work dead to get that paycheck. In the old days it probably was harder for many. (2)

A couple of planters said they probably had less pay compared to the men. One woman remembered: *"Women had four kroners less per day compared to a man, even though we went alongside the men and put just as much plants as they did"* (3). Some thought the pay was similar between sexes in both planting and pre-commercial thinning. A couple said they didn't know, it

was something they hadn't reflected over. A couple further thought they probably got less compared to male workers because men worked as loggers and had full-time employments.

Many believed they earned good money doing forest work compared to other work they could have had. One woman who planted seedlings during the summer season in Arjeplog said: *"Well, it brought in good money. In the short run so to say. It was short but intensive"* (4). A woman who planted seedlings in Jokkmokk said her father thought they had too much pay for their work. This statement reflects the status of planting compared to other work such as logging. Another woman stated that they earned good money, but she also called it *"slave-work"* because they worked very hard and long days. Earning their own money was for some more important than for others. This was especially true for two of the women who supported their family on their salary only. Some said they did not work to get money of their own, rather to contribute to the family economy. However, a couple thought it was important for them to earn their own money, as one woman explained: *"It felt kind of good to have something just for me. Something I myself had the control over"* (5).

Equivalent to the sense of freedom of working and being outside in the forest, economic freedom was also important. This sense of being their own provider, not only depending on a husband, probably contributed to independence as well as confidence. Particularly, in context of the rural society where men had been the traditional breadwinner of the family.

ESM 5. A broader discussion on different aspects of women's work in the forest

When small farms successively closed down in the inland northern Sweden to be replaced by rationalized larger scale agriculture and wage-work during the second half of the 20th century in northern Sweden, women became increasingly available for other work. This, combined with an increased need for labor in forestry, has probably been decisive for the women, who are presented in my material, having worked in the forest. The forest industry was also a major employer in the forest districts in the north (Bäcklund 1988). Many women could take jobs in the forest because they were seasonal. Seasonal work was probably easier to combine with household-work and children. This further says something about expectations of women, even though they took paid work, they were expected to take care of home and children (Fiebranz 2010). An additional factor among the women I interviewed is also that some actually did not want to work with such as care-work, nursing or cleaning, the traditional women's work. The introduction of day-care and kindergarten was probably also a very important factor that contributed to increased opportunities for women to work, as they were usually responsible for the children.

Among the loggers only one started at a young age, by learning in the forest. Similar to the way young boys were traditionally introduced to logging (Johansson 1989; Ryd 1980). Many of the women working in the latter half of the 20th century went to an applied forestry school. This change in knowledge requirements and technique at this time reflect the modernization in forestry during this time. However, forestry education was described as male dominated, just like forest work. This of course strengthened the gender roles and resulted in more men becoming loggers also during the latter part of the 20th century. Logging continued to be men's work. In turn this contributed to few women working as loggers and probably why some women continued to regard it as unsuitable or impossible for women. Furthermore, it is also very clear from my work, and especially among loggers, that women had to stand up for their choice of work, in a way that men in the forest did not need. They had to demand or create space for themselves in an environment they were generally excluded from.

A couple of the women I interviewed expressed that men didn't want to be in planting, because it was work for children and women. This I think reflect the different, maybe invisible, status of different forest work and could be an explanatory factor to why women got that work. A couple of women also pointed out that it is the same today, men still hold most power positions in forestry. Thus, women continue to be marginalized. By understanding historical structures, we might become more aware of structures today. This, I think is important in the process of making forestry more equal and establish a broader meaning of forest work and forestry (c.f. Reed 2008).

Some of the women (when asked about if they felt respected or if there was any problematic behaviour towards them from other forestry employees or society) said they would not let themselves be bothered. One woman who worked with pre-commercial and planting in Västerbotten said she knew how to "use her mouth" if met with derogatory treatment. Her answer shows that although they generally felt respected and worked in a good social environment, they were aware that comments and other derogatory behaviour could occur. She also said it was worse

for the women who were not as tough. Hence, being a little “hard-nosed” probably made working in the forest easier for women. That is an adaption that persist among women in forestry today, it is easier to be one of the boys (Baublyte et al., 2019).

The women narrate forest work as primarily designed for men. Clothes and equipment were often big and not adjusted to women’s size. This was also reflected when women were pregnant or with regard to child-care. First, because they had to combine child-care and work, since children were their responsibility. Second, because men were the dominant forest worker, they had not developed any adjustments regarding work conditions while being pregnant. Even so there were few complaints and most adapted to the circumstances they found themselves in. The social structures were built around men. This is not strange considering more men worked in the forest, especially with work such as logging, log-driving on the rivers and log transportation. As Johansson (1989) narrates, boys were taught and formed into forest work from a young age, which girls were not. Had girls gone with their fathers to the forest, like boys did, things might have been very different. There are very clear social and cultural structures connected to forest work, which have been formed for a long time. These structures explain why women were and continue to be excluded from and marginalized in forest history.

Although women were few in forest work such as logging, driving timber on rivers and timber transportation, they have been present. Hedda Lovisa Johansson was a woman in Västerbotten County who logged trees with hand saw and axe (S:son-Wigren & Sandström 2001). In a magazine from 1918 it is stated that few young women probably would want such work and if they did, it was not suitable for them (S:son-Wigren & Sandström 2001). The writer also states that she probably was overwhelmed with tiredness many evenings, although the logger herself said she liked the work. The writer clearly reflects the presumptions towards women in this work, by just assuming that this work was too exhausting for her. Meanwhile, when I analyse this (short) text I get the perception that this work suited her well, which is in accordance to my own findings. The writer, however, take another angle, probably influenced by social norms. Therefore, thorough and respectful research regarding women’s own reflections and experiences are of immense importance.

The lack of documentation and acknowledgment of women’s work results in the collective forgetting of women’s contributions (Lerner 1997). This can be exemplified by examining previous historical documentation. Ebeling (1959) describes an intensive work with collecting cones during the 20th century, that formed the basis for the plant nurseries. An "intensive" work with "the procurement of seeds for the production of required plant material" (Ebeling 1959). This work, which probably have an enormous significance for today's plant nurseries and plant quality development, but still was not really seen and true “forest work”. This, in my opinion, is a clear example of the fact that women’s work has not had a place in forest history writing. It relates to my reasoning regarding the status of different work and what work is regarded as “forest work” (cf. Johansson 1994). If a forest worker is limited to a man with an ax and a hand saw, logging trees, the public disqualifies other work in the forest, to not be seen as forest work. To broaden the picture of forest work and fill gaps in historical narratives, we need to attribute women's stories and work (Lerner 1997; Walls & Zimpel 2002).

ESM 6. Prospects for future research

There are much more to explore regarding women in forest history. Such research can be done by analyzing historical records with new methods and by using theoretical frameworks which until now have not been applied. However, the most important approach would, in my opinion, be oral history. There is an urgent need to perform such research since many of the women, who worked in the forest during the earlier 20th century, are elderly. By postponing such research their stories might never be documented and preserved for future generations. This is especially true for women who has worked in the classic masculine sphere in forestry; in manual logging, log-driving in the rivers and timber transportation with horses. Though they were few, women have done such work (Norén 2019; Walls & Zimpel 2002; Vallström 2010). A couple of the women I interviewed told me about “Timmer-Anna” (Timber-Anna), a woman who worked with transporting timber in Sorsele municipality and “Stor-Sofia” (Big-Sophia) who did the same. But their stories will very soon become lost since they are not narrated in historical documentation. However, there is still time since their stories live in the collective memory among many people in the inland districts of northern Sweden.

Additionally, women’s work with picking cones for the seedling nurseries, their “help” to bark logs in the forest and their work in plant nurseries. Similarly, there are very few narratives from these women. How did they perceive their work and how important was it for them to do this work? Furthermore, what impact did women’s “help” in the forest have on their husbands or fathers work as a logger? Again, and as have been shown in many other cases, women’s unpaid work has been done without being really noticed but has been generating more efficient work and thus generating more money to their family’s economy.

Women in forest union work is another interesting aspect for further research. How and when were women introduced to forest unions, what positions did they get and how were they met? Similar to paid work men remained the norm in union work, even though women increased there as well during the 20th century (de los Reyes 2000).

It would further have been interesting to put the results in relation to general political development during the 20th century in Sweden with regard to child-care, education for women and equality measurements. This would enable deeper analysis and further contextualization, as well as increase understanding regarding women’s position and work.

An interesting complement to my study would be a cross-examination of women in forest work and their employers’ point of view at this time, before modern equality approaches were introduced: how did local state foresters and foremen reason when hiring women? A couple of the women I interviewed said they probably were hired because they were more thorough in their work or because they had lower demands regarding salary and working conditions. It would be

interesting to hear the employer's point of view, was it like these women said or did it maybe also depend on the lack of workers in relation to the demand? What were the main obstacles for male employers when hiring women? Did they have a changed point of view after having had a woman hired as a logger or where these women rather considered unusual?

There are obviously much more to find out regarding women's work in forests and their role in forest history. Like Johanna Bertell (2010) states "We cannot change history, only our way of looking at it", that is why it is so important to attribute women's work and add the narrative of their experiences.

ESM 7. References for Electronic supplementary material

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ESM 8. Quotes for ESM 2

Original quotes in Swedish (fat text marks a quote within its original longer context from the interview)

(1) För då tyckte ju arbetsgivaren att de tjänade för lite på oss, naturligtvis. För de hade ju varit rakt ackord. Jaha då locka dom ju med att det skulle bli ett bonussystem. Så vi skulle ha en viss del garanterat och sen skulle vi då ha som en blandackord resten. Å då säger fackordförande som vi hade "Å de vet ni ju kamrater att vi måste ju säga både ja och nej till det här förslaget". Så då räckte jag upp handen å så sa ja "Vi behöver enbart säga nej". **Och då sa en gubbe som stod där "Det finns bara en kvinna här men hon säger vad vi alla tycker"**. Så då fick vi inte bonussystemet just då. Men sen var dom ju så fula så dom gick ju till var och en, som dom visste hade tjänat mycket på ackord. Det var en finne där han högg jättemycket. Så då fick dom över mer och mer. Dom gör ju så, splittrar upp. Det är ju inte bara i skogen dom gör så utan det är ju i alla branscher. Så då blev det de där bonussystemet med en viss fast och så sen vart det ackord då.

(2) Jo. Då hade man väl kanske tanken att... int kanske jag högg lika mycket som dom int. Men jaa... jag vet aldrig att jag blev ifrågasatt heller just i... jag tror folk trivdes ganska bra. Dom behövde inte dräpa sig för att få den där månadslön. För förr hade det väl varit lite jobbigare för många.

(3) Men då vare en sak! (Hon håller upp en finger framför sig, som visa på en sak). En sak, planteringen. Kvinnor hade fyra... Nä då ska jag ta den dagspenning vi hade då, det var ju inte så mycket. Kvinnor hade fyra kronor lägre per dag än en man fast vi gick på si[d]a av karl och sätte precis lika mycket plant. För att vi var kvinnor gjorde dem så.

(4) Jaa det gav ju bra med pengar. På kort sikt alltså. För man var ju... kort men intensivt. Så det var väl därför man var med på ne. Men det var ju tungt, mycket, mycket tungt vare ju

(5) Jaa..., det var det ju. Det kändes ju liksom bra att ha lite eget. Någonting som man liksom styrde över själv.

SENASTE UTGIVNA NUMMER

- 2020:05 Författare: Therese Prestberg
1900- talets skogsbruk i kronoparksskogar – En skogshistorisk studie om Håckren och Bjurfors kronoparker
- 2020:06 Författare: Nils Södermark
Inverkan av trädslagsval och plantstorlek på tall- och granbestånds anläggningskostnad, skadeutveckling och tillväxt i norra Sveriges kust- och inland
- 2021:01 Författare: Torben Svensson
Tallsåddens potential för återbeskogning av marker med tjocka humustäcken eller torv i norra Sverige.
- 2021:02 Författare: Therese Strömwall Nyberg
Vad betyder det att skydda natur? – En europeisk jämförelse av skyddade områden
- 2021:03 Författare: Oscar Nilzén
The Guardian Forest – sacred trees and ceremonial forestry in Japan
- 2021:04 Författare: Gustaf Nilsson
Riparian buffer zones widths, windthrows and recruitment of dead wood
A study of headwaters in northern Sweden
- 2021:05 Författare: Louise Almén
Naturhälsokartan - Hälsöfrämjande naturområden i Väster- och Österbotten
- 2021:06 Författare: Lisa Lindberg
Trait variation of Lodgepole Pine – do populations differ in traits depending on if they are invasive or in their home range?
- 2021:07 Författare: David Falk
Drivers of topsoil saturated hydraulic conductivity in three contrasting landscapes in Kenya - Restoring soil hydraulic conductivity in degraded tropical landscapes
- 2021:08 Författare: Jon Nordström
En mähr som hette Mor – De sista härjedalska hästkörarnas berättelser från tiden innan skogsbrukets mekanisering.
- 2021:09 Författare: Roberto Stelstra
Implementation of native tree species in Rwandan forest plantations – Recommendations for a sustainable sector
- 2021:10 Författare: Kazi Samiul Islam
Effects of warming on leaf – root carbon and nitrogen exchange of an ericaceous dwarf shrub.
- 2021:11 Författare: Ellika Hermansson
Ett riktigt hästarbete –skogsarbete med häst i sydvästra Sverige, förr, nu och i framtiden
- 2021:12 Författare: Fabian Balele
Wildfire dynamics, local people's fire use and underlying factors for wildfires at Liwale
- 2021:13 Författare: Martina Lundkvist
Samband mellan ståndortsfaktorer, genetik och historiska skördedata från tall- och granfröplantager – krävs ökad precision vid val av lokaler för nyafröplantager?