Gender balance

PHOTO: PÄR FORNLING

in the Nordic forest sector

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SNS
Nordic Forest Research

Foreword

In recent years, the Nordic Council of Ministers (NCM) has focused on equal opportunities regardless of whether you are a man or a woman. Nordic Forest Research (SNS), as a co-operating body under NCM, has furthered these goals by initiating and funding this project. The scope of the present project was to acquire and compare fresh data on gender distribution among forestry (higher education) students and in different types of forest organizations in the Nordic Countries. Knowledge on gender equality practices and ambitions was not part of the task, but may be included in possible follow-up projects.

Birger Vennesland at the Norwegian Institute of Bioeconomy (NIBIO) has coordinated the project. Sara Hildebrand from Switzerland has assisted in collecting data as part of her Internship within SNS.

There was a need to establish a working group of researchers interested in gender issues in the Nordic forestry sector.

The following working group was formed with researchers from the five Nordic countries: Teppo Hujala (Finland), Björg Björnsdottir (Iceland), Ann Dolling (Sweden), Line Nybakken (Norway) and Niels Strange (Denmark).

Everybody within the working group has contributed to collection of data as well as writing the report. We have had ten meetings to secure a common understanding of the substance in the report.

Ås 5 juni 2020
Birger Vennesland
Coordinator

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1 Introduction

Among the Nordic countries, the promotion of gender equality is highly valued. The Nordic Council of Ministers for Gender Equality (MR-JÄM) has centralized the importance of equal rights and equal opportunities for all people when searching for jobs.

Nordic Forest Research (SNS) is a co-operating body under the Nordic Council of Ministers that strives to enhance benefits for the Nordic region and contribute to a sustainable society. The SNS strategy plan focuses on improving gender equality and social inclusion, and ensuring that equality becomes a regular feature of work in the Nordic forest sector.

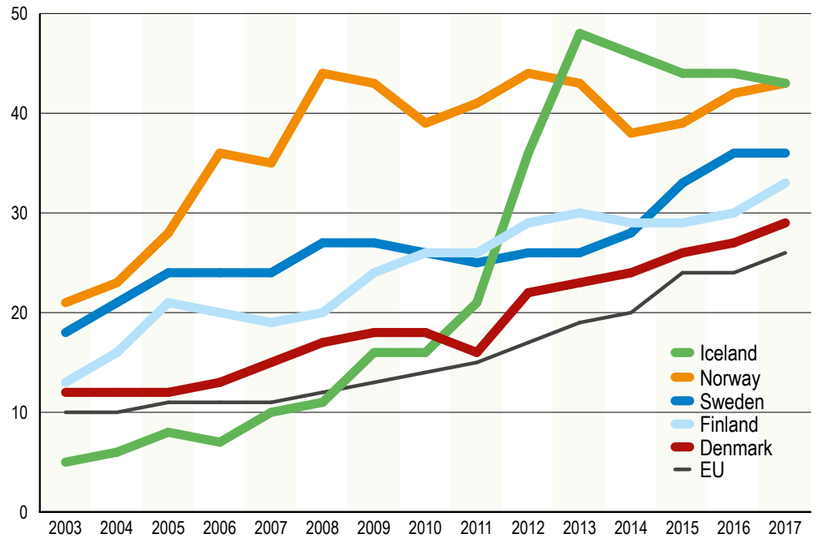
When we use the term gender, we refer to persons' social status as women or men. They may be cis- or transgender, or non-binary. We note that at present, most Nordic forest sector organizations recognize only women and men but no other categories in their gender distribution data.

We assume that gender identities and gender expression in most cases make people recognizable as women or men. We do not assume anything about their sexes without further information. http://web.uvic.ca/~ahdevor/HowMany/HowMany.html

The share of women as board members in larger publicly-listed companies has increased during the last 15 years (nordicstatistics.org). In fact, since 2008, all Nordic countries have had a higher share of women as board members than the EU-wide average (see figure 1). How does this look like in the forest sector?

This project had the goal to evaluate the status of equality in the Nordic forest sector. Forestry is still regarded as a maledominated sector. To test this belief, we examined the representation of women at different levels within the key parts of the forest sector. We considered forestry activities up to the roadside and related support activities; thus, we left

Figure 1 Share of women as board members of larger publicly-listed companies



transport, manufacturing, sales, and marketing by the forest industries outside the scope of this report. In addition to fresh data on gender distributions, we have searched for trends to see if there has been an increase in the share of female representation within the Nordic forest sector. The present exploration, however, did not go on to study equality practices.

By analysing perceptions and reality in different levels of the forest sector, the main output from the project outlined in this report is knowledge presented for policy makers. We have focused especially on comparison between the Nordic countries to recognize commonalities and differences.

We aim to reach equal status and equal opportunities between men and women in the Nordic forest sector. As the first part of this study, we compared legislation amongthe different countries. We paid particular attention to legislation that influences the forest sector directly.

To secure our aspiration for an equal society, different countries have different legislations. Besides the focus on legislations related to equality issues within each country, we searched for legislations that has influence on forestry and equality.

At the end, based on the data collected, we try to outline where further research should be focused to strengthen equality in the Nordic forest sector.

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2 Legislation

concerning equality in the Nordic countries

2.1 Equality and Anti-Discrimination Acts

All five countries have a law on “Equality and Anti-Discrimination”. The purpose of these acts is to promote equality and prevent discrimination based on gender, pregnancy, leave in connection with childbirth or adoption, care responsibilities, ethnicity, religion, belief, disability, sexual orientation, gender identity, gender expression, age or other significant characteristics of a person.

”Equality” means equal status, equal opportunities and equal rights. Equality presupposes accessibility and accommodation.

2.2 Acts encouraging a 40 percent share

2.2.1 Norway

Lov om Allmennaksjeselskaper (Allmennaksjeloven) states that in Norway, from 2003 all public limited cooperatives (PLC) are forced to have 40% representation of both genders as board members within companies. Forest owner associations are regarded as PLCs in Norway.

2.2.2 Sweden

There is no Swedish legislation about genders representation on corporate boards in Sweden. The current government proposed 40% gender legislation in 2018, but the proposal did not get a majority in parliament.

2.2.3 Finland

The Finnish Act on Equality Between Women and Men requires all state committees, advisory boards and related bodies in national, municipal and cross-municipal organs (excluding elected municipal councils) to have a 40% share of both women and men, if specific reasons do not justify otherwise. According to this act, all organs under an institution with public authority should equally contain women and men. Further, all officials and other parties suggesting nominees to these organs should suggest both a woman and a man to each position to be filled.

In the forest sector, the above requirements regulate the Finnish Ministry of Agriculture and Forestry, the Finnish Forest Centre, and the municipal committees deciding on the use of municipal forests. It is noteworthy that in Finland, forest management associations (i.e. forest owner organization) are regulated via the Act on Forest Management Associations, which does not regulate gender equality.

2.2.4 Denmark

In December 2012, rules were introduced in the Companies Act (section 139a) and the Danish Financial Statements Act (section 99b) concerning target figures and policies for the gender composition of the management in the largest Danish companies.

This means that the largest companies in Denmark must set targets for the proportion of the underrepresented gender in their top management bodies. The companies covered by the statutory requirements must also develop a policy to increase the proportion of the underrepresented gender at their other management levels. The purpose is to make real progress in the number of women in corporate management.

The Danish Business Authority conducts an annual evaluation of companies’ reports on their target figures and policies. In addition, the Danish Business Authority monitors the development of gender distribution in the top management of companies in the form of statistical reports based on extracts from company-registered and other relevant studies. (Danish Business Authority 2019).

2.2.5 Iceland

Following an amendment to the laws on public limited companies (No. 2/1995) and private limited companies (No. 138/1994), companies with over 50 employees are obligated to have both women and men on their company boards and if the re are more than three board-members, the percentage of women or men cannot be under 40%.

These amendments also included changes that will make monitoring easier.


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2.3 Acts that have historical influence

2.3.1 Norway

Lov om odelsretten og åsetesretten (odelslova)

The allodial privilege gives the closest family members rights to take over a farm when the former owner dies or wants to sell.

Until 1974 a male holder of an allodial right was put before a female holder of an allodial right. For example, the younger brother had the right to take over the farm before his older sister.

In 1974 male and female inheritors born after 1965 gained equal rights.

2.3.2 Sweden

In 1845 the principle of equal inheritance law came into legal force in Sweden, but there were regulations that caused daughters to often receive less area and less productive land than their brothers.

Not until 1950 did women receive the same formal rights as men to manage their own forests.

The proportion of forest owned by women increased by as much as 86 percent between 1976 and 1992, which was mainly due to the fact that the children in a family began to inherit jointly.

It was no longer just the sons who inherited forest property.

Despite this, daughters are still more often excluded from the transfer of forest property. (Ärvdabalken)

2.3.3 Finland

Finland, while being a part of Sweden before 1809, was under the Swedish "Civil Code of 1734" (Sweriges Rikes Lag), in which The Book of Inheritance (Ärvdabalken) priveleged male over female inheritors. These included that i) a farmer's son(s) got two thirds of the bequest, and daughter(s) got one third; ii) when an estate of heirs was decomposed after a request by any of them, the males got the first choice from among the evenly distributed shares; and iii) when a single farm was distributed among heirs, a male had the right to the farm and others got smaller assets with a right to compensation.

These statutes remained in effect while Finland was part of Russia (1809–1917) as well as during the first decades of Finland's independence 1917, and they were replaced by a more equal inheritance rules in the new Ärvdabalk (Perintökaari; 40/1965), taking effect in 1966.

Ärvdabalken 1734 (within Sweriges Rikes Lag)

Ärvdabalk 40/1965 (Finnish legislation)

Table 1 Legislations concerning equality in the five Nordic Countries

Country	Acts equality in general	Acts concerning a 40 percent share of female board members in public companies	Historical acts
Norway	https://lovdata.no/dokument/NLE/lov/2017-06-16-51	https://lovdata.no/dokument/NL/lov/1997-06-13-45/KAPITTEL_6-1#KAPITTEL_6-1	https://lovdata.no/dokument/NL/lov/1974-06-28-58
Sweden	http://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/diskrimineringslag-2008567_sfs-2008-567		https://sv.wikisource.org/wiki/%C3%84rvda-balken
Finland	https://www.finlex.fi/sv/laki/ajantasa/1986/19860609#P4a	https://www.finlex.fi/sv/laki/ajantasa/1986/19860609#P4a	https://sv.wikisource.org/wiki/%C3%84rvda-balken
Denmark	https://www.retsinformation.dk/forms/r0710.aspx-?id=160578	https://erhvervssty-relsen.dk/koensfor-deling-i-ledelsen	
Iceland	Act on the Equal Status and Equal Rights for Women and Men, No 10/2008	https://www.althingi.is/altext/138/s/0752.html	

2.4 Summary of equality legislation

All Nordic countries have acts that focus on equality and anti-discrimination (Table 1). However, Norway, Finland, Denmark and Iceland have statutes that force public administration to have 40% female representation. Privileges for farmers' male inheritors over females were in place in Sweden until 1959, in Finland until 1966 and in Norway until 1974.

In this project data from Denmark, Finland, Iceland, Norway and Sweden are compiled.

The forest sector is defined as covering institutions, associations, companies and interest groups that do work related to primary forestry.

By primary forestry, we mean all forestry activities and actors who are involved until timber reaches the roadside. This means that we explicitly leave out work in transportation and wood processing industries.

However, in some organizations, the duties of employees may deal with a mix of primary forestry and manufacturing industry; thus, the scope of some of the data is a bit broader.

3 Data and methods

3.1 Where to collect data

Table 2 shows an overview of where we searched for data. However, this necessarily varied among the countries. The forest sector in each country was split into different levels, for a closer look into its country-specific structures.

Table 2
The forest sector as defined in this project

- Research
- Education
- Interest groups
- Public administration
  - State
  - Community
- Forest owners associations
- Forest owners
- Entrepreneurs

3.2 Collection of data

In the beginning of the project a working group was established, consisting of one member from each country. In addition, a student intern helped collect data. The project was coordinated from NIBIO, Norway.

Some data were collected online, separately from forestry organizations themselves and official statistics databases. Some of the data are based on expert views, whereas others were sent to us as a response to emails and phone calls.

In Sweden, Skogsstyrelsen has recently published a report on gender issues in the Swedish forest sector (Skogsstyrelsen 2019, Åtgärder för en jämställd skogssektor). Some of the data from Sweden are taken from this study.

3.2.1 Comments on how we "fit" the data to compare results between the countries

Data collected in the study were not always directly comparable. This has to do with how forest sectors are organized differently between the Nordic countries. However, we find that most of the data are comparable in a wider sense.

To give an understanding of the quality of the data we have evaluated their strength and comparability among countries. We have divided the data into three different levels:
1 Vague data. Very hard to compare.
2 Trustworthy but tricky to compare data.
3 Good data. Easy to compare.

Data regarding research and education are as close as we can get to exact numbers. We have concentrated on the bachelor and master levels which are well-known terms in higher education. All countries' data ranked in level 3.

Different interest groups are organized differently between the countries. Although the interest groups look different we have put them in the box called "Interest groups". These data are valued as level 2 for all countries.

Data regarding public administration has been hard to collect. In Norway, an ongoing reorganisation of counties has complicated how to collect comparable data.

Counties cannot be compared directly between the Nordic countries, and the forest sector is organized differently between the countries. This goes for ministry levels as well. To be able to do some comparison we have decided to leave the municipality level out of this study. This is ranked as level 2 for all countries.

Table 3 An overview of country-specific data quality.

Levels/Country	No	Swe	Den	Fi	Ice
Research and education (staff and students)	3	3	3	3	3
Interest groups (e.g., females' groups, labour unions)	2	2	2	2	2
Public sector (forestry administration)	2	2	2	2	2
Forest owners	2	2	2	2	2
Forest owner associations (members and administration)	3	3	1	2	2
Logging companies (timber buyers, contractors)	2	2	1	1	1

Table 3 Key to data quality levels:
1 Difficult to collect data (vague data). Very hard to compare
2 Data are trustworthy but not as easy to compare
3 Good data. Easy to compare

Forest owner data have been collected from the official statistics within all countries. Forest owners are organized in forest owners' associations. This is well developed in Sweden, Finland and Norway.

It looks a bit different in Denmark and Iceland. The value is 2 or 3 depending on the country.

Data on forest logging companies has mostly been based on expert views and varies greatly among countries, with values from 1 to 3.

Most of the detailed data used in the report are included in the appendix, while the main report presents summaries to give a general view and allow comparisons between countries.

3.2.2 Summary of data comparability

Table 3 shows an overview of quality in how to collect data between countries.

When searching for trends and development we see that the organizational structures are changing over time within the countries. This means that we have data from different periods between forestry levels within each country as well as in between the countries.

When possible we will explain trends country by country under the results.

First in this chapter, we will give an introduction to forestry in each country. This aims to give the reader an overview of similarities and differences of national forest sectors regardless of gender.

However, due to the authors' varying backgrounds, the focus of the introductory descriptions varies between the countries.

Focusing on gender balance, we present data following the definition of the forest sector that we set out within the study (see Table 2). For each level, we will explain similarities and differences between the countries. We also comments on the strengths and weaknesses of the data and comparability of the data.

Most of all we focus on the present share of female representation within all levels. Next, we look for trends. We have assessed the trends by assigning them between one (+) to three (+++) plusses depending on their strength. Variables with no trend were assigned a zero (0) and negative trends were given minuses (-). If no data were available or acquired for this report, we put N/A.

4 Results

4.1 Forestry in the Nordic countries

4.1.1 Norway

One fourth of Norway's land area is productive forest. In 2015, the growing stock of timber was 942 million cubic metres. The annual increment was almost 26 million cubic metres. In 2015, the forest owners cut 10.2 million cubic metres of industrial roundwood for sale. In addition, 2.5 million cubic metres of firewood was used by households. https://www.ssb.no/en/jord-skog-jakt-og-fiskeri/artikler-og-publikasjoner/agriculture-and-forestry-in-norway-2011

PHOTO: PRIVAT

https://www.ssb.no/en/jord-skog-jakt-og-fiskeri/artikler-og-publikasjoner/_attachment/286656?_ts=158d4106ca0

Most forestry in Norway is small-scale. In 2016 there were 130,000 properties with more than 2.5 hectares of productive forest land. The average private property with productive forest land is 45 hectares. http://www.skogbruk.nibio.no/skogen-i-norge-1

Most forest sector research is done at the Norwegian University of Life Sciences (NMBU) and the Norwegian Institute of Bioeconomy Research (NIBIO). NMBU offers education at bachelor and master levels, while bachelors in forestry are also educated at the Innlandet Norway University of Applied Sciences (INN).

4.1.2 Sweden

Two-thirds of the country's land surface – or 28 million hectares – is covered by different types of forests. Of this, 23 million hectares are considered productive forests. The growing stock of timber is 3,500 million cubic meters. Mean annual volume increment is 120 million cubic meters and mean annual harvest was about 90 million cubic meters in 2014. Forest products were 11% of Sweden's total exported value (2,193 billion SEK) in 2018. Sweden is world's second largest exporter of pulp, paper and sawn wood products.

Today, nearly 60,000 people are directly employed in the forest sector and Sweden is the world's second largest exporter of pulp, paper and sawn wood products combined. There are more than 300,000 private forest owners. Family-owned forests represent around 50% of the total forest area and about 60% of the total annual yield.
https://www.scb.se/hitta-statistik/sverige-i-siffror/samhallets-ekonomi/sveriges-export/
https://www.skogssverige.se/en/forestry https://www.slu.se/globalassets/ew/org/centrb/rt/dokument/skogsdata/skogsdata_2018_webb.pdf

4.1.3 Finland

The forest industry is important in Finland's national economy. In 2017, the value of exported forest products was some € 12 billion, accounting for one-fifth of all goods exported from Finland. The forest sector employs about 59,000 people, which is about 2% of the labour force in the country. Forestry land accounts for 86% of the total land area of Finland. Half of the growing stock is Scots pine, while Norway spruce accounts for 30% and deciduous trees (mainly birch) about 20%. According to the National Forest Inventory, in 2017 the total growing stock in Finnish forests was 2.5 billion cubic meters and annual increment 107 million cubic meters, while roundwood removals were 72 million cubic meters, and total annual drain was 87 million cubic meters. Some 82% of domestic wood for industrial purposes came from non-industrial private forests, which are owned by some 620,000 individuals. The average size of these family-owned properties is 30.5 hectares.

Sources:

E-yearbook of Food and Natural Resource Statistics for 2018. Statistical facts on agriculture, forestry, fisheries and hunting in Finland. Natural resources and bioeconomy studies 30/2019. Natural Resources Institute Finland (Luke). https://stat.luke.fi/sites/default/files/luke-luobio_30_2019.pdf

Ownership of forest land 2016. Official Statistics of Finland. Natural Resources Institute Finland (Luke). http://stat.luke.fi/en/ownership-forest-land

4.1.4 Denmark

Denmark has 625,603 hectares of forest which accounts for about 14.5% of the land area. The area of other woodlands is estimated at 44,000 hectares or about 1% of the land area. The largest forest areas are located in the central parts of the Jutland peninsula, while the largest forest percentage is found near the Capital Region and on the island of Bornholm.

In the most recent National Forest Inventory 2017 (Nord-Larsen et al., 2018) the forest area is categorized as coniferous forest (38%), broadleaf forest (43%), mixed broadleaved and coniferous forest (10%), areas with Christmas trees and greenery (5%).

A total of 64 different tree species were categorized in the inventory plots. Estimating the crown cover of each tree species allowed for an estimation of the national area share of the species. Norway spruce (*Picea abies*) is the most common species and covers 17.1% of the forest area, followed by beech (*Fagus sylvatica*) – 12.9%, pine (*Pinus ssp*) – 12 percent, oak (*Quercus robur*) – 9.6 percent, sitka spruce (*Picea sitchensis*) – 6.1 percent, *Abies normania* – 4.5 percent, maple (*Acer pseudoplatanus*) – 3.5 percent, and ash (*Fraxinus excelsior*) – 3.4 percent.

The age-class structure varies and only a small part of the broadleaf area consists of old stands. Less than one third of the beech area is

PHOTO: MARKUS SPISKE, UNSPLASH

older than 100 years and more than 92 per cent of the oak area is younger than 100 years.

The most common harvest regime is clear felling, accounting for 68% of the area, 20% is naturally regenerated and 11% is managed as uneven aged stands. The total standing volume is estimated at 132 million m^3 corresponding to an average standing stock of 211 m^3/ha.

Pure broadleaved forests account for 43%, pure conifers 38%, mixed broadleaved/conifers 10%, christmas trees 5%, and clear-cut areas 3%. In the most recent assessment (2017), the total harvest annual was estimated at 3.9 million m^3 of which 71% was coniferous and 29% broadleaved.

Approximately 41% of the total harvest was used for industrial wood (construction, furniture, etc) and 59% for energy production (firewood, wood chips or wood for energy). The forest sector plays a minor role in the economy.

The gross factorial income generated by wood production is 194 million euro or 0.07% of the Danish gross domestic product.

4.1.5 Iceland

Organised forestry is considered to have begun in Iceland in 1899 with the planting of the Pine Stand at Thingvellir. The first act on forestry and soil conservation was adopted in 1907 by the Icelandic parliament.

After an early phase of experiments with exotic tree species, forestry efforts largely focused on protecting birch woodland remnants during the first half of the 20th century, which compose the National Forest system today. Since about 1950, emphasis has been on afforestation through planting trees. Planting by forestry societies and the Icelandic Forest Service (IFS) increased greatly during the 1950's, reaching over 1.5 million seedlings per year during 1960-1962. The principal species planted were exotic spruces, pines and larch: *Picea abies, Picea sitchensis, Pinus sylvestris, Pinus contorta* and *Larix sibirica*. Planting declined after 1963 and remained at 500,000 to 1 million seedlings annually to 1989. Afforestation through planting increased again to roughly 4 million seedlings annually throughout most of the 1990s, reaching a high of about 6 million seedlings per year during 2007-2009. Planting of native birch increased proportionate to the total, comprising as much as 30% of seedlings planted in some years. *Larix sukaczewii* (syn. *L. sibirica* var. *sukaczewii viridis*) was planted to roughly the same extent and planting of *Picea sitchensis* increased as older stands showed very good growth.

Public funding for forestry reached a maximum in 2005, after which it started to wane slightly in real terms (rated against inflation). After the financial crisis of 2008-2009, funding for forestry was cut dramatically.

In real terms, public funding for forestry in 2013 was only half of what it was 2005. This resulted in a drastic reduction in planting, down to about 3 million seedlings in 2015.

4.2 Research

Table 4 shows that about 1/3 of researchers are female at public and private research universities in Nordic countries apart from Norway and Iceland. In Iceland the share is 50%, and at the University of Helsinki is as high as 46%. The trend is positive, especially at universities in Sweden. Among research institutes, NIBIO in Norway and UEF in Finland have recently had a slightly negative trend and Luke in Finland a positive trend of female staff proportion. In the small forestry research group of PTT in Finland, females are a majority.

4.2.1 Norway

The Norwegian Institute of Bioeconomy Research (NIBIO) hosts 90 positions in the Division of Forestry and Forest resources. Women hold 28% of the researcher positions. Men on the other hand take the two top positions in administration.

The forestry staff at the Faculty of Environmental Sciences and Natural Resource Management (MINA), Norwegian University of Life Sciences (NMBU), consists of PhD students, postdocs, researchers, adjunct professors, associate professor and professors.

The two last categories are the permanent, scientific staff that have the traditional 40% teaching, 40% research and 20% administration division in their contracts. At the forestry section of the faculty, there are two associate professors and 12 professors. Two of the professors, i.e. 17% of the permanent staff members are women, employed in 2011 and 2018. Before that, there had never been a female professor of forest science in Norway.

The adjunct professors are part-time (usually 20%) teaching positions with three-year contracts. All three of these are men. Of the researchers, some have a permanent position (they have been employed more than three years), and some only have part-time positions. The three women are the only ones with part-time positions, and are also the only ones that are not permanent (their contracts are tied to projects). The PhD and postdoc categories together comprise eight people, of which five are women.

This overall picture is quite typical for academia, with a relatively high share of women in recently-recruited positions, but with few female professors. However, although we do not have the historical picture here, the high share of women in entry-level positions is positive and a prerequisite for an increase at higher levels in the coming years. The increase in female professors from zero to two the last seven years is hopefully also a sign of a trend.

Table 4 Percentage of female researchers and university teachers within the Nordic countries at present and trends

Country	University	% women	Trend	Public research	% women	Trend	Private/ business	% women	Trend
Norway	NMBU Norwegian university of Life Sciences INN	17 25	+ +	NIBIO	28	-			
Sweden	SLU Linnaeus University	32 37	++ +				Skogforsk	25	
Finland	South-Eastern Finland UAS (XAMK) University of Eastern Finland (UEF) University of Helsinki (UH)	22 32 46	N/A - N/A	Luke	38	+	PTT	60	0
Denmark	University of Copenhagen	32	N/A						
Iceland	Agricultural University of Iceland	50		Icelandic Forest Research	50				

4.2.2 Sweden

Skogforsk (the Forestry Research Institute of Sweden) is a research institute financed by the forest industry and the Swedish government. The research is applied and demand-driven. Of the Institute's staff of about 120, some 80 are researchers. In 2019, Skogforsk had approximately 25% female researchers.

The faculty of forest science at SLU is spread across 4 locations: Umeå, Uppsala, Alnarp and Skinnskatteberg. The faculty has 12 departments/units, 8 experimental and research stations, 50 professors (December 2018), 532 employees (December 2018) and 64 doctoral students (December 2018). There are four master's programmes and an average of 36 PhD graduates per year (2014–2017). The annual turnover is 713 million SEK, of which 362 million SEK is from external grants and missions (2018). The master's program in forestry (Jägmästarprogrammet) is given in Umeå, with the opportunity to read two years in Alnarp and/or Uppsala. The three-year bachelor program in forest management (Skogsmästarprogrammet) is located in Skinnskatteberg.

The Department of Forestry and Wood Technology at the Faculty of Technology at Linnaeus University is situated in Växjö. The department has 37 employees (as of 2019), including 4 professors, 14 doctoral students and

PHOTO: MATS HANNERZ

21 with a doctoral degree. The annual turnover is 42 million SEK, of which 21 million SEK is dedicated for education and 21 million SEK for research, of which 15 million SEK comes from external grants. The education focuses on a) the bachelor program Skogskandidat, b) the engineering program in forestry and wood technology and c) courses for forest owners.

The number of women has increased among the academic staff at SLU and Linnaeus University. The share of women among PhD students at SLU is today more than 50%, and a little less at Linnaeus University (43%). However, the further up in the hierarchy one rises, the fewer women there are. The forecast for increasing the proportion of female professors at SLU is not good. There are few women to recruit or promote within the faculty and there are few chairs for full professors.

4.2.3 Finland

University education (bachelor's, master's and doctoral programmes) in forest sciences may be acquired at two universities, the University of Helsinki and the University of Eastern Finland (until 2010 known as the University of Joensuu, where forest science education started in 1982). The University of Helsinki has a Department of Forest Sciences within the Faculty of Agriculture and Forestry, and the University of Eastern Finland has a School of Forest Sciences within the Faculty of Science and Forestry. Both units provide research and education in a range of scientific disciplines under the umbrella of forest sciences. The share of female professors and lecturers in forest sciences was rather low until the 1980s, after which it started to grow gradually after the increase of female students and forest science degrees completed by women. The share of female researchers and teaching staff is currently 46% at the University of Helsinki and 32% at the University of Eastern Finland. The latter figure has fluctuated between 32% and 38% between 2010 and 2018.

Higher education in forestry is also offered at six universities of applied sciences: Karelia in eastern Finland, XAMK in south-eastern Finland, HAMK and TAMK in south-western Finland, Lapinamk in northern Finland, and Swedish-speaking Novia on the southern coast of Finland. For this report, XAMK provided information on the gender distribution of their forestry staff (22% female). The website of Karelia UAS shows that at the Wärtsilä campus where forestry and some other technical fields are taught, the staff proportion of females is 31%, which may be seen as a plausible estimate for the proportion of forestry staff there. In the same way, the publicly-available information shows that the female share among the staff is 27% at HAMK, 29% in Lapinamk, and 36% in Novia. For TAMK, this information was not publicly available at the time of compiling this report. In summary however, it can be estimated that the share of females within the forestry staff in Finnish universities of applied sciences is around 30%.

4.2.4 Denmark

The majority of forestry-oriented research and teaching takes place at two departments at the University of Copenhagen. The Department of Food and Resource Economics focuses on social science research and teaching within the forestry domain, and the Department of Geoscience and Natural Resource Management is focused on natural science research and teaching. It is noted that the share of females in research and teaching is smaller than the average share of females in Ph.D. education (note that the average is not weighted).

4.2.5 Iceland

Icelandic Forest Research, the national forest research body, consists of 10 employees as of 2018, of whom 43% female (weighted for part-time employees). Most of the administrative work is done by employees (1 woman and 1 man). All employees, except one male employee, work full-time.

As for the researchers at the Agricultural University of Iceland, there is an equal share of women and men. This is true for the researchers, who are full-time employees, as well as for the other faculty staff, who are not permanently employed. Out of 30 employees, the share of female employees is 47%. The share of females amongst the employees in the technological program is 55% with a similar percentage among PhD students.

4.3 Education

4.3.1 Bachelor

Table 5 shows that Iceland has the highest and Norway has the lowest proportion of female bachelor students.

It is noteworthy that the 15% of females in NMBU is a low figure has not shown any change. The other available trend information from Sweden and Finland is positive regarding the proportion of female students.

It is also interesting that the difference between SLU and Linnaues University is notable, as is the difference between Finnish (science) universities and universities of applied sciences.

Table 5 Share of females among all students in 2017 and trends since 2010/2015.
[1] Source (for Finnish data): Vipunen – Education Statistics Finland

Country	University	% Women	Trend
Norway	NMBU INN	15 15	0 0
Sweden	SLU Linnaeus	31 45	+ 0
Finland [1]	Universities (UH & UEF) Universities of Applied Sciences	44 26	+ +
Denmark	University of Copenhagen		
Iceland	Agriculture University of Iceland	47	

Table 6 Share of females among master's students in 2017 and trends since 2010/2015.
[1] Source (for Finnish data): Vipunen – Education Statistics Finland. Finnish degrees from the Universities of Applied Sciences refer to Upper UAS degrees (YAMK) that are comparable to universities' master's degrees according to the Bologna classification.

Country	**University**	**% women**	**Trend**
Norway	NMBU	40	++
Sweden	SLU	32	+
Finland [1]	Universities (UH & UEF) Universities of Applied Sciences	43 28	- 0
Denmark	University of Copenhagen	50	-
Iceland	Agricultural University of Iceland	33	

4.3.2 Master

Table 6 indicates that Norway and Sweden have a 30–40% share of female among master's students. We also see a fluctuating but mostly positive trend in these two countries, and a slightly negative or flat trend in Denmark and Finland.

In Denmark and Iceland we see that about 1/2 respective 1/3 of master's students are female.

In Finland, the female share among doctoral students has varied between 38% and 46% between 2011 and 2018, showing no clear trend. The proportion of females is higher at the Finnish (science) universities than at the universities of applied sciences.

4.3.2.1 Norway

Forestry at the bachelors level can be studied at two different universities in Norway. At NMBU, there has been an increase in applications for forestry studies between 2007 and 2017, after historically very low numbers at the beginning of the 2000s. The average share of female bachelor's students has been 30% over the last five years, while the share of master's has been 15% during the same period. It is difficult to detect any trends, as both the number of students and gender shares fluctuate a lot. The share of women finishing a master's degree has varied between 0 (2019) and 40% (2014) in the last ten years. The corresponding numbers for bachelor's degrees are 11% (2016) and 67% (2014), leaving out two years where only one student graduated with a bachelor's degree from NMBU.

Bachelor's-level studies in forestry are also offered at the Innlandet Norway University of Applied Sciences (INN). The share of female applicants for those studies is in general lower than at NMBU. Within the highly-variable number of female applicants there is no clear trend. Fewer female students started at INN-Evenstad than at NMBU.

4.3.2.2. Sweden

Bachelor's (*skogsmästare*) and master's (*jägmästare*) education in forestry can be obtained at SLU, and the bachelor program *Skogskandidat* (earlier named *Skogs- och träprogrammet*) is available at Linnaeus University.

The share of female forestry students at SLU has increased during the last ten years. The share of female students in the master program jägmästar has fluctuated, peaking at 43% in 2015. The bachelor program skogsmästare had its all-time high figure in 2018 with 37% and had been around 20% for the past 10 years. The share of graduated female forestry students at SLU has also increased and mirrors the increase in overall female forestry students. The share of women has also increased at Linnaeus and is now 45%.

4.3.2.3 Finland

In Finland, higher education in forestry may be obtained from six universities of applied sciences and two universities. In the statistics summary below (extracted from Vipunen – Education Statistics Finland internet service), figures from these two groups are presented separately (Table 7).

In general, the share of female students has been higher at universities (35–45%) than in universities of applied sciences (20–35%). There has been an increasing trend in female bachelor-level students in both university groups, but the trend is stronger at universities. Universities' female master's students have however evidenced a slightly declining trend. The share of females among doctoral students in Finnish universities has no notable trend, remaining above 40%.

An interesting feature in these statistics is that for both bachelor's and master's degrees at universities the share of females has declined from around 50% to around 40% between 2007 and 2017. The notable and stable increase in the share of new female university students (from below 40% in 2015 to over 50% in 2018) indicates that in the near future the total number of female students will climb back to half of all students.

Table 7 Proportion of females among completed degrees, all students and new students in Finland, summarized separately for the (science) universities and universities of applied sciences
[1] Source: Vipunen – Education Statistics Finland. Finnish universities grant admission directly to both bachelor's and master's degree programs, thus the information on new Finnish bachelor's (and master's) students for universities is in the upper row while the information on the new (international) master's degree students is in the lower row.
[2] Source: Vipunen – Education Statistics Finland. Finnish degrees from the universities of applied sciences referred to as upper UAS degrees (YAMK) are comparable to universities' master's degrees according to the Bologna classification. Numbers of new UAS master's students are so small and fluctuating that female proportions are not meaningful to present here. The new students' cell for universities gives data only on their master's degree programmes, thus not including students starting their master's-level studies after completing their bachelor's degrees in the programmes in which they were simultaneously granted admission to both degrees.

Education Level	**Education Section**	**Degrees**		**All students**		**New students**	
		% women	**Trend**	**% women**	**Trend**	**% women**	**Trend**
Bachelor [1]	Universities (UH & UEF) Universities of Applied Sciences	50 26	- -	44 26	+ +	60 31	++ +
Master [2]	Universities (UH & UEF) Universities of Applied Sciences	32 35	- +	43 28	- 0	49 N/A	++

The evidenced decline in females' degrees may be caused by changes in degree programmes, and their exam and admission procedures, which at times may have been more attractive to male applicants, and are now yielding a more equal gender distribution because of opposite drivers, which are currently not so well known. In the universities of applied sciences both the share of new and all female students has slightly increased during the 2010s, but is still around 25% among all students and some 30% among new students, the latter however giving a reason to anticipate a steady increase in the proportion among all students in forthcoming years.

4.3.2.4 Denmark

An MSc in Forest and Nature Management can be obtained from University of Copenhagen. It is a 2 year MSc degree. If you hold a BSc degree in Natural Resources, or a professional bachelor's degree in Forest and Landscape Engineering from the University of Copenhagen you are automatically admitted. Other first–cycle degrees can be admitted upon application. The education has only been offered at the University of Copenhagen since 2007. It was previously the Royal Veterinary and Agricultural University (until 2007). The total number of students enrolled has varied from year to year. Between 2005 and 2015 the average student number was 25 and has increased to 34 between 2016 and 2018. The share of female students has also fluctuated. On average, the share is 37%, peaking in 2013 with an uptake of almost 70% female students.

The number of students completing the studies varies from year to year. The norm is 2 years of studies, but some students may need more than 2 years to complete their studies. The average female share of students completing their studies is estimated at 30%, fairly similar to the share starting the MSc.

BSc in Forest and Landscape Engineering

A 4 years professional BSc in Forest and Landscape Engineering is granted by the Forestry College at the University of Copenhagen. We did not have access to time series data on the number of students starting and completing studies. However, we have looked at the total number of members and the share of women in the Danish Forest and Landscape Engineers Union. The share of female members has increased slightly and may reflect an increasing number of females educated. We also note that the share of female members in the Danish Forest and Landscape Engineers Union is smaller than the share of females graduating with a MSc in Forest and Nature Management.

4.3.2.5 Iceland

The Agricultural University of Iceland has offered forestry studies at bachelor's and mas-

ter's levels since 2007. With a total of 19 bachelor's students in 2018, the numbers of students are low compared to the other Nordic countries. A slightly higher share of females can be seen in the master's program in forestry.

The Forest Technology school offers education and training at a technical level. Information about graduates has only been available since 2005, and one-third of the graduates have been females.

4.4 Public Administration

It is not as easy to compare public administration among the Nordic countries. According to Table 8, the highest share of female representation (60%) we see is in the Finnish Ministry of Agriculture and Forestry. In rest of the countries the share of women varies between 30% and 40%. There has been a positive trend in Norway and Finland, but no observable trend in other countries.

4.4.1 Norway

The Ministry of Agriculture and Food (LMD) has chief responsibility for food and agricultural policy. Agricultural policy covers land use, agriculture and forestry, reindeer and other animal husbandry, and development of new agriculture-based industries. https://www.regjeringen.no/en/topics/food-fisheries-and-agriculture/skogbruk/id1292/

The Norwegian Agriculture Agency is an agency of the Norwegian Ministry of Agriculture and Food, and is a national authority, having the competence to ensure that all schemes and regulations are administered uniformly across the country, and throughout the value chain. It is there to provide professional advice, implement agricultural policies, and facilitate co-operation within the agricultural and food industry. Within the framework of the national agriculture and food policy, the Norwegian Agriculture Agency strives to be a user-orientated and efficient enterprise that contributes to securing the resource base for agriculture and forestry. https://www.landbruksdirektoratet.no/en/

The county governor is the state's representative in local counties and is responsible for monitoring the decisions, objectives and guidelines set out by the parliament and government. In addition, the county governor provide an important link between municipalities and central government authorities. https://www.fylkesmannen.no/en/About-us/

National level:
The Department of Forestry within the Ministry of Agriculture and Food has about 12–15 employees. Four of these have been women for the last 15 years, and one of them has been working in administration. This gives about 30 percent women working in forestry department for the last 15 years.

The number of people working at the Norwegian Agriculture Agency has increased during the last years. At the beginning of 2019 12 people were working at the Agency. There has been a shift in the share of women during the last period. From 20% in 2014 this has increased to more than 40% in 2019.

County level:
The county governor's responsibilities within the field of forestry are linked to the long-term management of forests as a resource enabling profitable commercial operations. In cooperation with other actors, the county governor is also engaged in efforts to generate more value through the use of timber as a raw material.

During the last few years there has been a restructuring and the number of counties has been reduced from 18 to 10. This means that when collecting the data it has been hard to get the right numbers. For some counties we have not succeeded in collecting any information on employees (see Appendix, section 8.1, page 39).

The share of women varies greatly among the counties. In fact, the share of women varies from zero up to 100%. For some counties we have collected data covering the most recent 15 years. For others we only have data for the last few years. All county-level data have been collected by each respective county governor. From the numbers we argue that there has been an increasing trend in women working with forestry issues at the county governor level.

Table 8 Share and trends in female employees in public administration

Country	Administration	% Women	Trend
Norway	LMD	27	0
	Landbruksdirektoratet	42	++
	FMLA	32	
Sweden	Skogsstyrelsen	27	0
Finland	Finnish Forest Centre	35	0
	Ministry of Agriculture and Forestry	60	+
	Metsähallitus (State Forest Enterprise)	30	+
Denmark	Naturstyrelsen	29	0
Iceland	Icelandic Forestry Service	40	


PHOTO: PIXABAY

4.4.2 Sweden

The Swedish Forest Agency is the national authority in charge of forest-related issues. Its main function is to promote forest management that enables Sweden's forest policy objectives to be attained.

The forest policy places equal emphasis on two main objectives: production goals and environmental goals. As the administrative body in charge of implementing the forest policy, the Swedish Forest Agency cooperates with representatives from the forest industries and the environmental sector towards the goals of economically and ecologically sustainable forestry.

The Swedish Forest Agency is placed under the Ministry of Enterprise and Innovation, where the Minister of Agriculture and Rural Development is responsible for forest issues. Each year they receive direction from the government with goals and the financial framework for the organization.

The Swedish Forest Agency is a statistical agency and responsible for three forest statistical areas included in the official statistics of Sweden: forestry production, employment in forestry and environment and social values in forestry.

The Swedish Forest Agency handles issues related to forests and forestry and has the task of ensuring that the country's forests are cared for and used in such a way that the goals of forest policy can be achieved.

The Forestry Agency supervises and ensures that the forest sector follows the laws and regulations that exist. Other responsibilities are:

PHOTO: PIXABAY

- to provide advice and support to forest owners and others in the forest sector
- to make forest inventories
- to provide statistics on forests and forestry
- to increase awareness of the importance of forests for human recreation and health.

The agency has offices in some 80 locations-spread around the country and has its head office in Jönköping. The Forest Agency is led by a director general. Ultimately responsible is a board appointed by the government.

Field operations and contacts with forest owners are conducted in districts, which are geographically divided into three regions; north, central and south.

In total, about 800 people work at the Forest Agency. About 35% of these are women. The management team consists of 11 people, of whom seven are men and four are women.

4.4.3 Finland

The Finnish Ministry of Agriculture and Forestry (MMM) is responsible for preparing national forest policy and related legislative processes as well as Finland's participation in EU and international forest policy processes. In the Ministry's Forests and Bioenergy unit and in some other units, forest-related matters are covered by a core of 20 people, of whom 12 (60%) are female, and there has been an increasing trend.

Finland's Forest Centre is a nation-wide public forest administration organisation, which under the command of MMM takes care of law enforcement, promotion of forestry and related livelihoods, regional forest programmes, guidance and training to forest owners, and acquisition and delivery of forest resource data. Due to state budget cuts, the total number of Forest Centre employees has declined during 2012–2017 from nearly 700 to around 570. During that time, the proportion of female employees has remained at 35-36%.

The Finnish state forest enterprise Metsähallitus takes care of the state's lands and waters, one third of Finland's total area. Metsähallitus Forestry Ltd. and Metsähallitus Property Management take care of the business activities: forest management and real estate sales, lease and management, while the Parks & Wildlife Finland unit takes care of national parks, other protected areas, recreational opportunities and hunting and fishing on state-owned lands and waters. The whole Metsähallitus employs some 1.200 persons, of whom 30% were female in 2017. The total number of Metsähallitus employees has declined from nearly 1.500 employees in 2015, while the proportion of female employees has increased from 27% to a few percentage points higher.

4.4.4 Denmark

The Danish Nature Agency (Naturstyrelsen) manages about 200,000 hectares of state forests and natural areas. The main aim of the agency is to manage areas to sustain high values for society. The agency is under the Ministry of Food and Environment. The Danish Nature Agency has about 670 employees, of whom 130 are in the head office in Jutland (Randbøl), and 85 at the Coastal Directorate in Jutland (Lemvig), while the other employees are located at the board's 16 local units throughout the country. The proportion of female employees has remained steady at around 30%.

4.4.5 Iceland

The Icelandic Forest Service (IFS) was established according to the Forestry and Soil Conservation Act of 1907. It is the state forestry authority in Iceland and is under the Ministry of Environment and Resources. The

Table 9 Interest groups (and labour unions in Finland).

Country	Interest organisations	Members	% women	Trend
Norway	Kvinner i skogbruket	308	100	N/A
Sweden	Spillkråkan	444	100	N/A
Finland	METO – Forestry Experts Association	6,321	17	0
	Loimu – The Union of Professionals in Natural Environmental and Forestry Sciences: members who have the Academic Foresters Union background	1,901	31	N/A
	Loimu – student members who have the Academic Foresters' Union background	292	64	N/A
	The Society of Finnish Female Professional Foresters	199	100	0
Denmark	DSL - Danish Forest and Landscape Engineers		19	
Iceland	IFA - Icelandic Forestry Association			
	Women in Forestry (Skogarkonur - New)	58		

IFS manages the national forests, totalling about 7,000 hectares or 5% of Icelandic forests and woodlands. The majority of forest and woodland area within the national forests is protected native birch woodland, but there are also cultivated forests of various species, experimental forests and arboreta. All national forests are open to the public year-round and some are among the most visited outdoor recreation areas in Iceland. Their status with respect to outdoor recreation varies from barely accessible wilderness to considerably developed, with marked footpaths, picnic areas and campgrounds. The National Forests employ a full-time staff of around 30 people.

Between 1950 and 1990 the main emphasis of the IFS was on afforestation through planting. The IFS planted roughly half the trees planted in Iceland up to 1990, mostly in the national forests. To this end, the IFS built and ran as many as six tree nurseries in various parts of Iceland. After 1990, seedling production was gradually privatised and other actors took the lead in planting. Tree planting is now a relatively minor part of IFS activities but continues at a rate of 50-100 hectares per year.

Besides planting, the IFS promoted increased woodland area through direct seeding and self seeding of birch. Most IFS enclosures were established around remnants of birchwoods where natural regeneration was usually abundant. For example, the area of birch cover within the original Hallormsstaður National Forest enclosure increased by 330 hectares from 1906 to 1995 without any birch being planted, or an average of 3.7 hectares per year, more than doubling the original forest area in 90 years. https://www.skogur.is/en/forestry/forestry-in-a-treeless-land/the-icelandic-forest-sector

The Icelandic Forest Service has as of 2019 a total of 67 employees. Out of these, 20 are women, a share of 30%.

4.5 Interest groups

In Norway, Sweden, Finland and Iceland there are special female interest organisations within the forest sector, and the total number of members in those is close to 1,000 (Table 9). On 23 November 2019 a letter of intent to establish "Nordiske Skogskvinner" was signed. The aim of Nordiske Skogskvinner is to create a Nordic community for women interested in forestry. Table 9 also shows the number of members and proportion of females in the two main forestry labour unions, showing that the university-based student members already have a female majority, while the polytechnic-level-based labour unions have as little as 17% of female members.

4.5.1 Norway

Kvinner i Skogbruket, the organization for women in forestry, has a purpose of encouraging women with an interest in forestry to work together. It was established in 1986 and is open for both women and men as members. However, the organisation is mostly focused on topics related to strengthening women's influence the in forest sector.

Today they have about 350 members which include forest owners, forest workers, students, employees within public and private administration and women who just love forests.

They have an ongoing project with the topic of equality in forest sector. The project is financed by the Nordic Council of Ministers. This is a joint project with *Spillkråkan*, a sister organization, from Sweden, and Women in Forestry, a sister organization from Iceland.

Women in Forestry also has an ongoing project focusing on female forest owners playing an important role in the tranition to a green economy. The main topic is education and places for female forest owners to meet.

4.5.2 Sweden

Spillkråkan is an association for female forest owners. The association started in 1998 with the goals to i) strengthen women's influence in the Swedish forest sector, ii) increase knowledge and awareness of sustainable forestry, iii) build female networks for knowledge development and exchange of experience. The association has 444 members with a median age of 61 years and a total forest property size of all members of 55,650 ha.

4.5.3 Finland

There are two main labour unions in Finland lobbying for forest professionals. METO speaks for the forestry technicians and engineers as well as foresters with university of applied sciences degrees and Loimu speaks for academic professionals of nature, environmental, and forest disciplines, i.e. university degree holders.

METO has some 6,300 members, many working in practical forestry professions, with a female share of 17%. Similar to the comparison between university and UAS students, the university-background labour union Loimu has a higher female share among its forestry-based members (31% of 1,901 members) than the UAS- and former "polytechnic"-based METO has.

In the METO figure above, retired members are included, which partly explains the low proportion of females, because male dominance was stronger in earlier generations.

It is notable that among Loimu's student members with a forestry-studies background (292 people), the share of females is 64%. This lets us expect that the share of female members will increase in the future. A special association for female academic foresters, a member of Loimu union, was established in 1955, and it has since then promoted equality of the (academic) forestry profession and the position of females in the labour market. At present it has slightly below 200 individual members.

4.5.4 Denmark

There are no particular forestry-oriented interest organisations in Denmark, except for the Danish Forest Owners Association (described below).

4.5.5 Iceland

The Icelandic Forestry Association (IFA) is a national umbrella organisation for local and regional forestry associations throughout Iceland, who together form one of the largest non-governmental organisations in Iceland.

Table 10 Present share and trend in female forest owners

Country	Owner Category	% women	Trend
Norway	Small scale Forestry	25	++
Sweden	Small scale Forestry	39	0
	Large scale Forestry (Board members)	30	+
Finland	Individual owners of forest land	41	+
Denmark	Small Scale Forestry	14	0
Iceland	Small Scale Forestry		

The IFA was founded in 1930, making it one of the oldest environmental associations in Iceland. The IFA is an advocate for forestry associations, guards their interests and speaks and acts on their behalf as needed. The goal of the IFA is to further the interests of forestry in Iceland and encourage all kinds of environmental improvements.

4.6 Forest Owners

The ownership structures differ between the Nordic countries. Mostly we have focused on small-scale forestry, particularly family forests. In Finland the share of female forest owners is 41%, Sweden 39%, Norway 25% and Denmark 14% (Table 10). The available trend information shows increase an in female ownership in Norway, Sweden and Finland.

4.6.1 Norway

In 2014, the total number of female forest owners in Norway is around 30,000, about 25% of all owners. This is an increase of 15% since 1989.

4.6.2 Sweden

Family-owned forests (private forest industry companies excluded) represent about 50% of Sweden's total forest area and 60% of the total annual yield. Sweden has about 350,000 forest properties of more than 2 hectares, for a total of around 11.4 million hectares. In an international perspective this is rather unique. Among the private forest owners 39% are female.

4.6.3 Finland

According to relatively fresh data on forest owners in Finland (from the Finnish Forest Centre's register extracted in February 2019), of persons owning more than 1 hectare productive forest land, 199,000 (41%) are female.

If looking closer at different types of ownerships, men dominate of ownerships comprising a single owner (68% owned by men), while within ownerships that have multiple owners, the share of female owners is 51% (125,000 female owners). There are about 127,000 singly male-owned forest properties, and the number of female-owned single-owner properties are 59,000.

The current data suggest (but do not give explicit evidence of) an overall increase of female forest owners' proportion among Finnish family forest owners, compared to earlier available statistics and studies.

4.6.4 Denmark

The total number of forest properties in Denmark is estimated at approximately 26,000. More than 89% of the properties are between 0.5hectaresand 20 ha. Private forest owners, companies and foundations own around 75% of the forest area.

Forest owners are mostly men, who make up 86% of all forest owners.

Women make up 14% of all forest owners, but are better represented among medium-sized owners, making up 19% of forest owners with 100–250 hectares and 17% of owners with 32–99.9 hectares (Boon 2003). The average age of the female forest owners is 4 years higher than the male forest owners

Only 6 percent of the male owners have inherited their forest.

Approximately 78% of the male forest owners have purchased the forest compared to 47% of all female forest owners (Boon & Anthon 2002).

4.6.5 Iceland

No systematically-collected information on forest owners in Iceland exists. Forest ownership in Iceland has mainly been evolving via afforestation. Rather than numbers of owners or their gender distribution, the following describes the process of establishing new forest ownerships.

From its limited beginning as a pilot project by the IFS on four farms in 1970, state supported afforestation on farms has grown to become the main channel for afforestation activity in Iceland.

Since 1970, the grants scheme has gone through several institutional changes and a great deal of development has taken place.

Between 1990 and 2016 the grants scheme

Table 11 Share and trends in female members of the boards or councils and staff of forest owners' organizations

Country	Organisation	% women	Trend
Norway	Norges Skogeierforbund	25	++
	Glommen	38	
	Mjøsen Skog SA	29	+
	Viken Skog SA	29	
	AT Skog SA1	43	-
	Allskog SA	50	0
	Norskog	0	
	Statskog	43	
Sweden	Norra Skogsägarna		
	Norrskog		
	Mellanskog	33	N/A
	Södra		
Finland	Forest Management Associations (Mhy), elected councils 2016	14	N/A
	Forest Management Associations (Mhy), salaried professional staff 2018	21	N/A
	Central Union of Agricultural Producers and Forest Owners (MTK), forestry group staff 2018	64	N/A
	Metsäliitto cooperative, elected council 2019, 52 members	19	+
	Metsäliitto cooperative, regional committees 2019, (n=106)	11	N/A
Denmark	Danish Forest Association	0	N/A
Iceland	Icelandic forest owners association	57	

was managed by Regional Afforestation Projects (RAPs) that were independent of the IFS, but the IFS and RAPs were merged in 2016. State funding of farm afforestation grants reached a maximum during 2005–2009 but has since suffered severe cut-backs.

Within the farm afforestation grants scheme, contracts are made with landowners, afforestation plans are drawn up for each participating farm, seedling production and distribution are co-ordinated, education and extension services are provided and grants are distributed. Recently, methodology and provision of grants has been developed for spacing and pre-commercial thinning.

Each farm afforestation grant covers 97% of establishment costs, including fencing, roads, site preparation, planting and the first thinning. The individual landowner owns the resulting forest and bears all legal responsibility. The landowners often do part of the work themselves but other parts of the work are usually done by contractors. Thus, the grants scheme has led to establishment of small businesses providing services to forest owners, such as fence maintenance, road work, site preparation, planting and thinning.

https://www.skogur.is/en/forestry/forestry-in-a-treeless-land/the-icelandic-forest-sector

4.7 Forest Owners' Associations

In all of the Nordic countries, forest owners are organized in special forest owners' associations. We have collected data regarding board and council members within these owner associations.

In Norway, we see (Table 11) that Allskog, At Skog, and Statskog has reached the goal of 40% female representation.

In Iceland, the majority of board members are women. In Finland, forest owners' organizations' administrative bodies have a low share of females (between 10 and 20%), but the small group of land owners' national lobby organizations has as high as 64% female representation among their staff.

4.7.1 Norway

In Norway there are two national forest owner associations. In addition, Statskog controls state-owned forests.

The Norwegian Forest Owners' Federation was founded in 1913, and is the central organization for four regional cooperatives after the latest mergers during 2019: Glommen Mjøsen Skog SA, Viken Skog SA, AT Skog SA and Allskog SA.

The regional cooperatives cover almost the whole of Norway and represent about 36,000 family forest owners, with a timber market share of approximately 80%. https://skogeier.no/om-oss/about-us-english-version/

Within the Norwegian Forest Owners' Federation, 5 out of 16 employees (30%) are women. Two out of eight board members (25%) are women. The boards of the regional cooperatives mostly meet the requirement of at least 40% share of both sexes among the board members representing the forest owners.

NORSKOG is a member organization for forest owners, representing more than 1.2 million hectares of forestland in Norway. Members of Norskog account for about 10% of total cutting in Norway.

About 30% of the employees in Norskog are women. Ten years ago only 20% were women. At the board there has been one woman out of a board of five (20%) during the last few years. However, in 2018 there were no women on the board.

Statskog, representing the state forest owner, stands for about 10 percent of harvesting in Norway.

Statskog has about 120 employees placed all over Norway. The share of female employees has been about 35% over the last 15 years. The board has averaged 43% women over the last 15 years.


PHOTO: MATS HANNERZ

4.7.2 Sweden

About 112,000 family forest owners cooperate in four regional associations (Norra, Norrskog, Mellanskog and Södra) organized as producers' cooperatives, owned and managed by the members of each association. The central organization is LRF Skogsägarna, The Federation of Swedish Family Forest Owners, with it's head office in Stockholm.

Since 1995, when Finland and Sweden joined the European Union, the organization has been represented at the EU level in Brussels by a joint lobbying office, the Bureau of Nordic Family Forestry.

4.7.3 Finland

The Act on Forest Management Associations (10.7.1998/534), after the modifications taken effect in 2015, permits forest owners to voluntarily join one or more forest management associations (FMAs), which are local or regional forest owners' associations. At present, there are 66 FMAs in Finland, and some 70% of forest owners are members of an FMA.

The highest decision-making power of each FMA is held by a council, which the members of the FMA elect every four years in statutorily-defined elections. In the 2016 election, a total of 1665 council members were elected, of which 14% were female. Councils choose executive boards of typically 5-8 members, the gender distributions of which are not currently officially monitored. The Act does not regulate equality within the boards.

At the time of writing this report (summer 2019), board information for 61 FMAs was available on their websites (www.mhy.fi).

PHOTO: MATS HANNERZ

Among those, the average proportion of female board members was 17%. As many as 15 FMA boards, i.e. one quarter, had no female representation at all. It was common that a small FMA had a five-member all-male board or that there was one female in boards comprising 6–7 members.

The 40% threshold of both genders' representation was reached in four FMA boards out of 61 (7%). The highest share of females among all FMA boards was 43%.

Of the salaried employees of FMAs, 21% were female. However, these statistics, available via the METO union's pension fund data, do not separate forest and office workers of FMAs.

Of some 880 employees, some 100 falls within the category of office workers, and one may presume that the share of females is higher in that category and respectively lower than 21% among forest workers. The forestry group staff of MTK, the national landowners' lobby organization, is 64% female, meaning that men compose only 36%.

For comparison, the elected councils of the Metsäliitto cooperative, which is owned by 104,000 Finnish forest owners and which steers the Metsä Group company, included 15% and 19% women in election years 2015 and 2019, respectively.

The proportion of females in the cooperative's regional committees, based on the same elections, was 11% in 2019. These figures are close to those of the forest management association's, and they are far behind the 40% equality threshold and the 41% females proportion among forest owners.

4.7.4 Denmark

The two major forest owner associations are SKOVDYRKERNE and the Danish Forest Owners Association.

SKOVDYRKERNE was established in 1904, and has developed into the biggest service provider in Danish private forestry.

The association services more than 5,000 forest owners of all sizes, from 0.5 to more than 1,000 hectares.

The association is organized as six local co-operatives (each a judicial independent entity) operated by boards consisting of local forest owners, with open accounts and transparency in all matters.

The main product is extension – providing unbiased advice and transfer of know-how to the members. Assistance is also offered with practical work on the properties, including marketing of timber, wood chips, Christmas trees etc. Seedlings, fencing materials, fertiliser, etc. are provided to members. SKOVDYRKERNE also offers full-service forest related operations on members property in cooperation with subcontractors. This includes logging, skidding, wood chipping, road construction, afforestation and reforestation, establishment of shelterbelts, management planning, and inventories.

SKOVDYRKERNE is represented locally in five regions and one secretariat. The total number of employees is 89 of whom 19 are women.

The Danish Forest Owners Association is a trade association that prromotes members' professional and commercial interests. Most members are forest owners. Companies, organisations and private persons with an interest in forests can be members as well. The organisation cooperates with politicians, authorities, other organisations, foundations, researchers, the media and many others. The association's daily work is financed by membership subscription, project funding and charges for consultancy work provided by the staff. The association does not administer forests itself. The association is a politically independent organisation and states they do not contribute financially to any political party. The Danish Forest Association has 11 employees of which 6 are women.

The board consists of 11 members and all are men.

It should be mentioned that the company HedeDenmark is Denmark's largest service and trading company within the green area. HedeDenmark has subsidiaries in Germany, Sweden, Estonia, Latvia, Lithuania and the United Arab Emirates. HedeDanmark has approximately 800 employees who provide services related to forests, the open countryside, gardens and parks as well as to the open spaces of the city.

4.7.5 Iceland

The forest owner association was formed in 1998 as a union and had 769 registered members in 2017–2018. 715 of those are single owners but not enterprises or entrepreneurs. Most of the members are land owners who participate in the afforestation grant scheme and show an interest in forestry.

Among 715 registered single owners are 228 female and 487 male owners, a 32% share of female. The Forest Owner Association has a board of directors elected by the members at their annual meetings. The board speaks for the association and is the main body that is in contact with the Forest Service.

In 2018 the board consists of 1 man and 4 women. Around the country are five local boards having direct involvement on the nation board of LSE 8 national forest owner association). Together these boards have 21 members. In 2018 there were 12 women and 9 men on the boards.

4.8 Forest engineering companies

There are virtually no female drivers of logging machines and forwarders (Table 12). There is a need to include women as employees in logging companies.

This is crucial because of a shortage of drivers in all Nordic countries.

After the introduction of logging machines and forwarders in the 1980s, the way of organizing forest harvesting has changed within the Nordic countries. From the 1990s until mid 2000s the technological development of equipment made the forest sector one of the most innovative and most productive industries. Today, we see that increased productivity

Table 12 Percentage and trends in female drivers within forest engineering companies. These figures are estimates provided by industry experts.

Country	Total number of drivers	% women	Trend
Norway	1 200	1	0
Sweden	12 000	4	0
Finland	6 000	1-2	+
Denmark	400	1	0
Iceland			

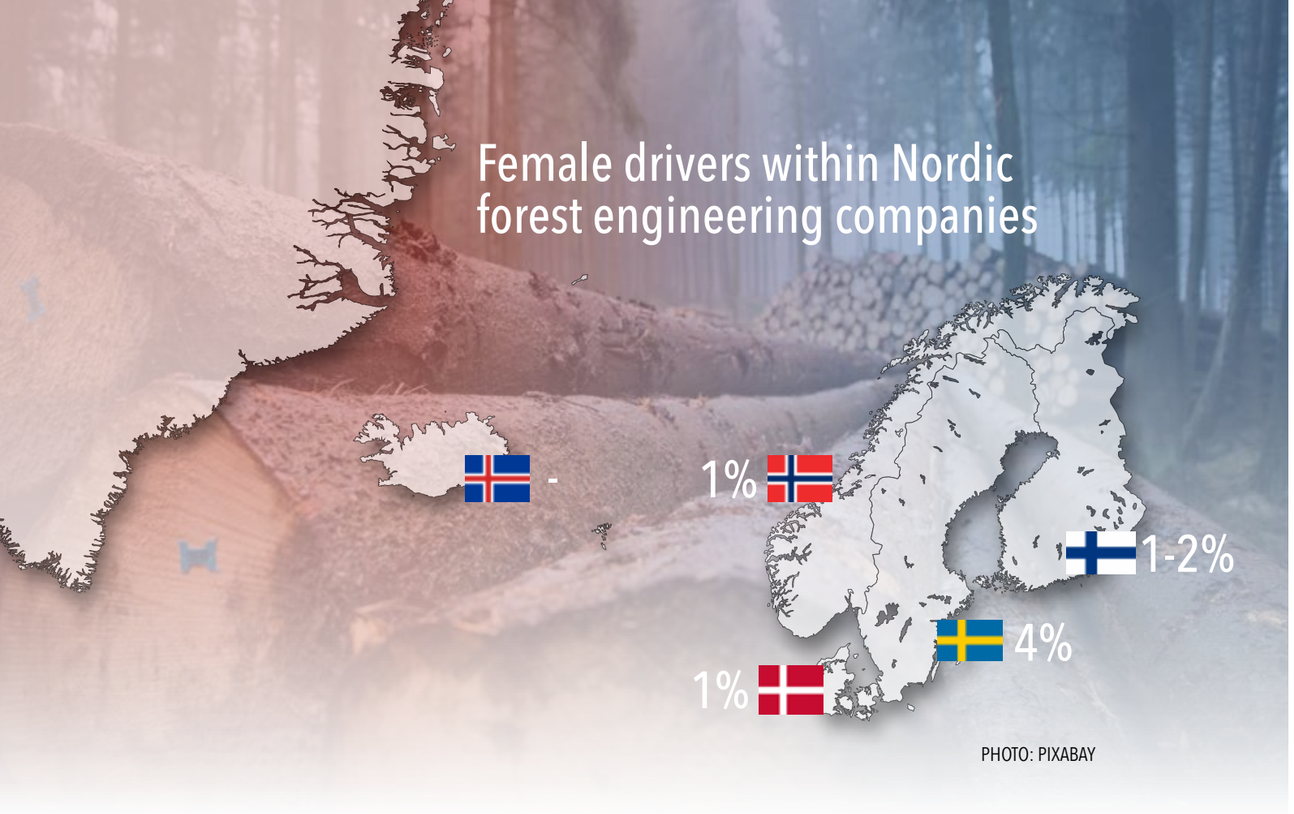

PHOTO: PIXABAY

is linked to the organization and planning of harvesting. Men have traditionally done most forest work in Nordic countries. This still seems to be the case.

4.8.1 Norway

A study of all forest contracting companies was conducted in Norway in 2016. A total of 250 companies were registered as private forest engineering companies. 135 companies responded to the survey.

One of the questions asked was about gender. There were zero female owners among the 135 companies who responded.

Annual harvesting in Norway during the last few years has been about 10 million m^3. We do not know the exact number of harvesters and forwarders in Norway. If we assume 20,000 m^3 on average per harvester, we can estimate that there are about 500 harvesters and 500 forwarders.

About 20% of these logging machines are used in two-shift rotation. From these numbers, we can estimate about 1,200 machine operators in the Norwegian forest sector. Out of these 1, 200 machine operators, we can find evidence of a maximum of 10 female drivers in Norway.

4.8.2 Sweden

The Swedish Forest Agency gives an overview of the number of forest contractors and their employees for the whole country by type of employment, gender and year. In the year 2017 there were 14,672 forestry employees in Sweden, of whom only 535 (4%) were women. Data from 2007 shows that out of 10,957 employees 448 were women, a percentage that did not change in the next 10 years.

4.8.3 Finland

The proportion of women among harvester and forwarder drivers has traditionally been very low in Finland. It has been and still is an exceptional case when a logger is female. Currently there are some 6,000 forest machine drivers, and very few of those are female. However, there are special education campaigns and training courses targeted and advertised to females, and occasional media articles about pathbreaking women who have taken that challenge.

Thus, there is a motivation to make logging work more inclusive and attractive to women as well. This motivation comes from the forecast reports of forest sector employment requirements (e.g., Savotta 2025 from year 2016), which estimate a need to educate 330-440 new machine drivers annually in the coming decade. With high competition for skillful and motivated students, these numbers may be hard to achieve if education marketing and recruitment focuses on males only. Savotta 2025 (In Finnish).

In Finland, forestry employees also include timber buyers at big forest industry companies and sawmills.

Typically, the main duty of these service providers is to make timber sales contracts with family forest owners and take care of related forest management services as well as loyalty contract communications with regular timber sellers. Stora Enso Wood Supply Finland has 450 employees, of which 23% are female.

The company has a fairly recent equality and antidiscrimination report, which also notes the gender distribution of their staff. Metsä Forest, the wood supply organization of the Metsä Group company, has a total of 570 employees in Finland, and the proportion of females is 17%. A comparable figure was not available for this report from the UPM company, but examination of forest owners' contact persons on their website gives an impression of male domination of timber buying activity. Of some 170 persons listed, 13 (some 8%) are by our best guess female, as of spring 2019.

4.8.4 Denmark

The Danish Forest Entrepreneurs Association is the largest member organization for Danish forest entrepreneurs. It provides targeted knowledge in an easily accessible manner, creates networks with utility for member companies, finds knowledge and shares it with members, handles forestry contractors' political and professional interests, profiles the industry area towards the outside world, and takes care of and mediates educational needs

There are approximately 200 forest contractor companies in Denmark. It is estimated that Denmark has approximately 200 harvesters and 200 forwarders. Based on a request in the Facebook group "Forest machine operators in Denmark" six female operators replied and five of them indicated they are driving forwarders (Claus Danefeldt Clemmensen, pers. comm., 2018).

4.8.5 Iceland

Since timber harvesting in Iceland is still under development, there is no information about logging companies.

PHOTO: MATS HANNERZ

5 Analysing data

at the Nordic level

When analysing data at the Nordic level, we have to look at the wider picture. We look for differences to explain and understand facts in a historical way.

Next, we look for similarities and search for ways to learn from each other.

5.1 Overall picture

The forest sector, like most primary and industrial sectors, has historically been male-dominated. This is generally true within all activities linked to primary and industrial sectors. During the 1960s and 1970s, the feminist movement started the fight for women's rights. Today, we see the results of this within the Nordic Acts of Equality.

The cultural shift within the forest sector has however been slow. The slow development towards more equal gender distributions may be a mixed result of the image and attractiveness of forestry professions, family traditions and related life choices of young individuals, and practices in the sector that are insufficiently inclusive to both men and women.

With the first wave of gender awareness in forestry, special days and groups for females were established. While offering females a sphere for emancipation, self-efficacy and safe action and discourse spaces, these new activities have carried a risk of reproducing gendered practices – "because forestry is not really for women, they need a special version of it".

The second wave of gender awareness has recognized the potential power of gender mainstreaming, and this wave is working to make the whole forestry sphere welcoming and inclusive for both genders rather than constructing bubbles separate from the main sector. In some forestry organizations, the second wave has already started (but is not yet very mature), while in others it is still to be initiated.

Today the forest sector is still male-dominated. We see the highest share of female representation within research and higher education. Some universities have high shares of female employees (e.g., Agricultural University of Iceland 50%, University of Helsinki 46%), but the variation is notable (e.g., NMBU only reaches 17%). We note that in some small Nordic research institutes, the proportion of females among forest research employees is high (e.g., PTT Economic Research 60%, Icelandic Forest Research 50%)

One interesting observation is that among Nordic research organizations, Skogforsk (25%) and NIBIO (28%) have notably lower shares of females than Luke (38%). These figures direct towards a benchmarking study and comparison of histories, cultures, and current practices.

The lowest shares of females is seen in logging work (0–5%), but also among wood buyers where the proportion of females may be below 10%. Despite some observed trends towards more equal gender distributions, there is still a way to go before we can conclude that an equal share between genders has been achieved. Iceland has the highest share of female researchers and students, whereas the other countries can learn how to recruit female faculty and students. It is also noteworthy that the gender distribution trends do not show a systematic increase of females in all categories.

Another noteworthy point about remale representation (seen in the Finnish data) is the difference between science universities and universities of applied sciences: there is a notably lower proportion of females completing and studying UAS degrees in forestry than forest science degrees. A similar pattern can be observed from the different types of organizations and labour unions: the closer to the ground, the lower the share of women. This pattern possibly reflects the masculine image of logging, although the practical requirements of those jobs have no reason to suggest gender biases.

More generally, the university data show that among higher education students the proportion of females is on average higher than what it is among current employees. Thus, there is a reason to expect an increased share of women in higher education jobs, on the assumption that the female graduates will

PHOTO: PRIVAT

get jobs in the forest sector at a similar rate to male graduates.

It is however interesting to observe that the trends are different across the Nordic countries. For example, the share of female students varies between 29% (in UCPH, Denmark) to 45% (Linnaeus University, Sweden). While the exact figures fluctuate between years and the historical and structural reasons behind them may be manifold, it is worth studying the different ways Nordic universities to make their study programmes attractive for both genders.

In public administration, the percentage of women differs between the countries. It goes from as low as 27% up to 60%. We should look at these differences and try to understand this diversity.

The general observation is however, that the public institutions have either a stable or an increasing trend of female employees. This is probably due to the equality regulations, which are more explicitly affecting the recruitment practices of public than private organizations, including communications and encouragements for both men and women to apply.

Furthermore, public institutions more often offer work for highly educated people, and the recruitment pool has more potential female applicants for those jobs than for other types of jobs. It has to be noted though, that large publicly traded companies (such as Stora Enso) have market incentives to show and monitor their responsibility, which makes them consider equality as part of their reporting and internal monitoring.

This information may lead to strategies and actions to make forestry workplaces more equal. Neither public regulations nor strong market-driven incentives are pushing non-profits or smaller companies, and those may need special support to recognize and take up equality measures in their operations.

Female representation among forest owners and within forest owners' associations is highest in Sweden, Finland and Iceland. Denmark and Norway have the lowest share. We know that there are historical explanations of some of this imbalance in Norway.

The reasons for Denmark's low share are harder to explain. In the case of Finland, where the forest owner organization is not regulated in terms of gender distribution, the current proportion of females in elected councils and nominated boards is around 15%, far behind the 41% of owners who are female.

A similar proportion of females, around 15%, can be found within the elected councils and voted regional committees of Metsäliitto co-op. While equal gender distribution may not be a prime aim of forest owners' administrative bodies, one may note that the 80-90% male-dominance likely makes it challenging to make those groups attractive and inclusive of females.

These organizations and their siblings in other Nordic countries have the full right to organize their administration in their own way, but it seems that from the gender equality and inclusiveness viewpoints they might benefit from external support in making their activities more interesting to females.

A justification to initiate such collaborative projects and consultations may come from recent business research, which has observed that companies with higher shares of females on their boards succeed better in the market. One can postulate that more diverse (not only

genderwise) decision-making bodies will be assets in the future competition, and forest owners' organizations may not be outside those success patterns. Similar challenges are in place for timber buyer organizations, which are also heavily male-dominated.

Looking at the forest engineering companies the situation is dramatic. Only 1-4% of drivers of forest machines are women. This makes it appear that the sector only recruits from half of the population. Finland, however, shows interesting signals of change, because there are some female-targeted machine driver courses and magazine articles presenting exemplary female forest machine drivers. In Norway, a young, female machine driver has also received some publicity lately.

5.2 Trends

There is a positive trend at all levels – except forest engineering companies. We see an especially positive trend in research and education. The observed exceptions to this trend of increasing proportions of female students and degrees may be explained by earlier changes in degree structures and admission procedures, which had gendered impacts. However, the big Nordic picture is either a rapid or moderate increase in female higher education students in forest sciences and forestry.

This situation should not be taken for granted, because recent history shows that female shares can also decline.

Therefore, it is recommended to carefully design marketing materials and admission communications so that prospective students see the forestry study programmes as genuinely available for all regardless of gender.

Compared to the student trends, the current data do not reveal an increase in female university staff. Although the turnover among staff members understandably occurs slower compared to students and degrees, earlier studies have shown signs of glass ceilings, slowing the growth of female representation in higher positions. As there are a number of female professors in the Nordic forest sector, so the situation does not seem to be critical, but in any case, inclusiveness challenges must be taken seriously in forest science departments in the Nordic universities.

In public administration, there is a strong positive trend in some institutions, but the current data do not reveal why progress has stalled at others. One possible reason may be the multiple organizational overhauls that have taken place in forest organizations in most Nordic countries. It could be that gender equality has not been prioritized in the situation when an organization has had to continue running through the flux. This explanation cannot however be used as an excuse any longer, but there is a need to make more active moves towards equality in those public forestry organizations without notable recent progress.

The data at hand have insufficient information on the trends within forest companies, wood procurement staff, and forest owner organizations. In some cases such information is not monitored, which signals that it has not been considered relevant, while in some cases the trend information has only been used for internal purposes.

From the figures, one can see that in some positions female proportions are so low that there has probably not been much increase in recent history. However, when looking towards the future, it might now be a good time to start monitoring, because when starting from low levels a positive trend would be easy to achieve.

This would then feed into gender equality communications and the image of the organization. Therefore, we strongly encourage forest companies (who are not yet doing so) and forest owner organizations to monitor gender representation data and open that data more frequently to public use, alongside information on gender equality actions that the organizations are taking.

5.3 Based on these results, what do we see?

It seems, that there are few female "leaders" in the forest sector. There are relatively few female professors, in a time of increasing female students. There are few female leaders on the boards. There are no female owners of logging companies, and very few female drivers.

PHOTO: MATS HANNERZ

We have to look for explanations of the lack of female leaders within the forest sector. Do women choose less-prominent positions, or are they held outside by the historically male-dominated forest culture? What are the roles of culture, competing study alternatives, family and peer pressure, and attractiveness of forestry careers in shaping an individual's decision on whether to choose and stay in the forestry profession?

And how are different organizations prepared to act towards gender equality and inclusiveness in their recruitment and personnel management activities? Have they started to consider that gender equality is important for future success; have they started to monitor their gender distribution data and link that to their business or responsibility strategies? Have they taken up the first or the second wave of gender awareness, and moved from "women's groups" to gender mainstreaming, in which men are also encouraged to take responsibility for equality?

Why do we focus on gender issues by counting the share of female representation? Is the goal to have an equal share of men and women within the forest sector?

In the introduction of this study, we stated that "equality" means equal status, equal opportunities and equal rights. This is the goal of SNS regarding gender issues. When searching for new knowledge this is where we need to focus.

6 Moving forward

Further research needed

The following research recommendations may be derived from the present results:

- **A comparative survey study among countries** (Denmark, Finland, Iceland, Norway and Sweden) on how women and men with forestry education experience the working conditions, opportunities for advancements, gender equality actions, etc. This will not only provide insights regarding existing hindrances and country-specific opportunities but also provide a necessary point of reference for future actions and the evaluation of their effectiveness. Furthermore, existing differences between countries can highlight successful initiatives and conditions that may be replicated in other countries.

- **A systematic analysis of gender equality policies and actions** in different types of forest organizations and companies across the Nordic region: in which organizations do any policies and actions exist and what are the aims and measures of the existing ones?

- **A study of the attractiveness of forestry education**; what is the image of the forestry profession among young people in Nordic countries, and what are the differences between countries and between male and female views?

- **Analysis of how forest owner organizations** have included gender equality issues in their strategies and work. Potential examples of analysis could be on how gender and gender equality are perceived, earlier actions to raise the participation of women, lessons learned and how they have been addressed, and possible future actions to that end (including benchmarking between the Nordic Countries). This part shall be done in collaboration with the Nordic network of forest owners' organizations.

We want to take the next step

We want to make a difference for the future. We want to increase equal status and equal opportunities for women and men in the forest sector. Searching for such equality, we have two options:

1. Active involvement in different actions.
2. Removing barriers that keep women on the outside.

For the first option, we can look for the existence of forestry actors' equality plans. For instance, are there any special plans for recruiting women in the sector? Another issue would be how to create a social environment that invites women. Men have to take responsibility and should be aware that they are creating the social environment.

For the second option, we may look for a mechanism that explains why women do not want to join the forestry sector. Do we see any hindering factors for inclusion of women? We know that all Nordic countries except Sweden have laws requiring 40% female (and male) representation of board members at public institutions. What are the results of such a political push?

Further research on gender equality in Nordic forestry may be done in collaboration with the IUFRO "Gender Equality in Forestry" task force, which has already outlined some activities to be conducted in Finland and Sweden, in 2020-2024. This task force aims, among other things, to examine gendered barriers within the network of IUFRO and further analyse a number of selected gender equality initiatives within various national forest sectors to better understand how research and academic education have contributed to policy processes regarding gender mainstreaming. With this report, we have examined the gender balance in the Nordic countries and suggest continuing the study efforts according to the above outlined objectives.

7 Websites used

Nordic Council of Ministers for Gender Equality (MR-JÄM)
https://www.norden.org/en/information/about-nordic-council-ministers-gender-equality-mr-jam

Nordic Forest Research – Strategy plan
https://nordicforestresearch.org/wp-content/uploads/2017/11/SNS-strategy-ml.pdf

Aaron H. Devor. 2018. Sociology Department University of Victoria, Canada
http://web.uvic.ca/~ahdevor/HowMany/HowMany.html

Nordic Statistics
nordicstatistics.org

Lov om allmennaksjeselskaper (allmennaksjeloven)
https://lovdata.no/dokument/NL/lov/1997-06-13-45/KAPITTEL_6-1#KAPITTEL_6-1

The Finnish Act on Equality between Women and Men
https://www.finlex.fi/sv/laki/ajantasa/1986/19860609#P4a

The Finnish Act on Forest Management Associations
https://www.finlex.fi/sv/laki/ajantasa/1998/19980534

The Norwegian Act on Allodial Privilege (Odelslova)
https://lovdata.no/dokument/NL/lov/1974-06-28-58

Norwegian Act on Equality
https://lovdata.no/dokument/NLE/lov/2017-06-16-51

Swedish Act on Equality
http://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/diskrimineringslag-2008567_sfs-2008-567

Danish Act on Equality
https://www.retsinformation.dk/forms/r0710.aspx?id=160578

Public administration in Sweden
https://www.skogsstyrelsen.se/

8 Appendix

8.1 Norway

Researchers at the division of Forestry and Forest Resources at NIBIO

	2016	2017	2018
Total	97	92	90
Women	29	25	25
% Women	30	27	28

Students entering the Master's Program at NMBU

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total	16	22	13	22	16	21	20	11	18	23
Women	5	4	5	3	3	6	3	0	5	9
% Women	31	18	38	14	19	29	15	0	28	39

Students entering the Bachelor's Program at NMBU

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total	9	12	9	20	15	25	21	28	29	27
Women	2	5	4	5	4	13	6	12	12	6
% Women	22	42	44	25	27	52	29	43	41	22

Students entering the Bachelor's Program at Evenstad

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total	9	13	18	9	19	19	21		
Women	0	3	3	0	4	3	4		
% Women	0	23	17	0	21	16	19		

Bachelor's students graduating from NMBU

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total	1	1	8	12	3	12	9	13	4	8
Women	1	0	2	2	2	6	1	2	1	4
% Women	100	0	25	17	67	50	11	15	25	50

Master's students graduating from NMBU

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total	5	7	14	15	5	17	12	22	15	11
Women	1	1	3	3	2	3	2	8	1	0
% Women	20	14	21	20	40	18	17	36	7	0

Employees at the Department of Forestry within the Ministry of Agriculture and Food

	2003	2008	2014	2015	2016	2017	2018
Total	12	13	12	11	11	11	11
Women	3	3	3	3	3	3	3
% Women	25	23	25	27	27	27	27

Employees at the department of Forestry within the Norwegian Agriculture Agency

	2004	2009	2014	2019
Total	3	6	10	12
Women	1	2	2	5
% Women	33	33	20	42

Employees at county level working with Forestry issues in 2018

	Total	Women	% Women
Oslo og Akershus	4	1	25
Hordaland og Sogn og Fjordane	7	2	29
Aust- og Vest Agder	7	2	29
Telemark	4	2	50
Østfold	3	1	33
Troms	2	1	50
Møre og Romsdal	4	2	50
Finnmark	2	0	0
Buskerud	4	1	25
Trøndelag	8	2	25
Rogaland	3	1	33
Hedmark	6	1	17
Oppland	4	1	25
Nordland			
Vestfold			

PHOTO: MATS HANNERZ

Members of the board in forest owner associations including Statskog

Norges Skogeierforbundet	2013	2014	2015	2016	2017	2018
Total	9	9	8	8	8	8
Women	1	1	0	1	2	2
% Women	11	11	0	13	25	25

Mjøsen Skog SA	2013	2014	2015	2016	2017	2018
Total	7	7	7	7	7	7
Women	2	2	2	2	2	2
% Women	29	29	29	29	29	29

Glommen Skog SA	2013	2014	2015	2016	2017	2018
Total	8	8	9	8	8	8
Women	3	3	3	3	3	3
% Women	38	38	33	38	38	38

AT Skog SA	2013	2014	2015	2016	2017	2018
Total	7	7	7	7	7	7
Women	2	4	3	4	4	3
% Women	29	57	43	57	57	43

Viken Skog SA	2013	2014	2015	2016	2017	2018
Total	7	7	7	7	7	7
Women	2	2	2	2	2	2
% Women	29	29	29	29	29	29

Vestskog SA	2013	2014	2015	2016	2017	2018
Total	6	6	6	6	6	6
Women	2	3	2	2	1	1
% Women	33	50	33	33	17	17

Allskog SA	2013	2014	2015	2016	2017	2018
Total		8	8	8	8	8
Women		4	4	4	4	4
% Women		50	50	50	50	50

Norskog	2013	2014	2015	2016	2017	2018
Total	5	5	5	5	5	5
Women	1	1	1	1	1	0
% Women	20	20	20	20	20	0

Statskog	2013	2014	2015	2016	2017	2018
Total	7	7	7	7	7	
Women	3	3	3	3	3	
% Women	43	43	43	43	43	

8.2 Sweden

Students enrolled (Bachelor and Master) SLU

	2009/2010	2017/2018
Total	142	102
Women	30	34
% Women	21	33

Students enrolled (Skogs- och träprogrammet, 2009 and Skogskandidatprogrammet 2017) Linnaeus University

	2009/2010	2017/2018
Total	82	58
Women	20	23
% Women	24	40

Students graduating (Bachelor and Master) SLU

	2009/2010	2017/2018
Total	97	151
Women	27	48
% Women	28	32

Bachelor's students graduating (Skogs- och träprogrammet) Linnaeus University

	2009/2010	2017/2018
Total	4	31
Women	2	14
% Women	50	45

PhD students at SLU

	2009/2010	2017/2018
Total	71	73
Women	33	38
% Women	46	52

Faculty SLU

	2009/2010	2017/2018
Total	90	225
Women	17	72
% Women	19	32

Faculty Linnaeus University

	2009/2010	2017/2018
Total	14	38
Women	4	14
% Women	29	37

Employees in large scale Swedish forestry

	2009/2010	2017/2018
Total	2200	2779
Women	352	417
% Women	16	15

Employees in forest engineering companies

	2009/2010	2017/2018
Total	12,700	14,672
Women	635	587
% Women	5	4

Employees in Skogsstyrelsen

	2009/2010	2017/2018
Total	1703	1176
Women	485	315
% Women	28	27

Number of forest owners

	2009/2010	2017/2018
Total	330,800	324,877
Women	125,704	122,802
% Women	38	39

Sveaskog, boardmembers

	2009/2010	2017/2018
Total	8	7
Women	4	4
% Women	50	57

Holmen, boardmembers

	2009/2010	2017/2018
Total	8	7
Women	1	1
% Women	13	14

Bergvik Skog, boardmembers

	2009/2010	2017/2018
Total		10
Women		1
% Women		10

SCA, boardmembers

	2009/2010	2017/2018
Total	8	10
Women	1	4
% Women	13	40

8.3 Denmark

Students enrolling in forestry MSc at the University of Copenhagen

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total	29	15	33	34	21	19	28	28	34	24	17	26	36	41
Women	6	5	11	11	5	7	10	15	16	7	5	7	18	18
% Women	21	33	33	32	24	37	36	54	67	29	29	27	50	44

MSc Forestry graduates from the University of Copenhagen

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total	29	29	14	23	22	22	26	22	23	23	29	19	16	17
Women	6	8	5	5	6	9	9	5	8	11	11	12	4	5
% Women	21	28	28	22	27	41	35	23	35	48	58	63	25	29

Members of the Danish Forest and Landscape Engineers Union

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	433	500	524	528	552	526	576	515	548	548	576
Women	49	60	74	84	64	65	101	70	92	92	108
% Women	11	12	14	16	12	12	18	14	17	17	19

Employed in agriculture, forestry and fisheries

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total	71,000	67,000	67,000	61,000	59,000	63,000	61,000	61,000	63,000	63,000	56,000	58,000
Women	18,000	14,000	14,000	10,000	10,000	12,000	12,000	11,000	13,000	12,000	12,000	13,000
% Women	26	21	21	17	17	20	19	18	21	19	22	22

Employees in Naturstyrelsen

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total	1089	1793	1713	1559	1453	1484	1434	808	839
Women	256	599	603	536	507	548	517	190	246
% Women	24	33	35	34	35	37	36	24	29

8.4 Finland

South-Eastern University of Applied Sciences (XAMK), forestry education employees

	2018
Total	9
Women	2
% Women	22

University of Eastern Finland, School of Forest Sciences, School of Forest Sciences employees

	2018
Total	115
Women	37
% Women	32

Natural Resources Institute Finland (Luke), Forest research employees

	2017	2018
Total	378	392
Women	135	148
% Women	36	38

University of Eastern Finland
School of Forest Sciences Employees (summed person years) by gender, years 2010-2018

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Male	45.0	46.1	44.1	39.2	46.0	51.0	59.0	60.0	56.0
Female	27.0	25.0	23.0	21.0	26.8	23.5	31.0	30.0	26.0
Female share (%)	38	35	34	35	37	32	34	33	32
Total person-years	72.0	71.1	67.1	60.2	72.8	74.5	90.0	90.0	82.0

University of Helsinki forest sciences students and degrees, bachelors level

	Total BA students	Female BA students	BA students, % women	Total BA degrees	Female BA degrees	BA degrees, % women
2018	529	206	39	46	18	39
2017	265	103	39	50	23	46
2016	320	119	37	53	12	23
2015	337	114	34	41	18	44
2014	349	234	67	52	18	35
2013	350	109	31	39	14	36
2012	343	104	30	51	23	45
2011	382	123	32	48	28	58
2010	382	123	32	48	27	56
2009	382	132	35	30	14	47
2008	370	145	39	39	25	64
2007	218	93	43	9	7	78

University of Helsinki forest sciences students and degrees, master's level

	Total MA students	Female MA students	MA students, % women	Total MA degrees	Female MA degrees	MA degrees, % women
2018	397	177	45	56	21	38
2017	171	71	42	49	15	31
2016	189	74	39	54	20	37
2015	180	79	44	46	25	54
2014	171	73	43	55	21	38
2013	167	82	49	67	32	48
2012	175	84	48	47	17	36
2011	162	80	49	52	29	56
2010	149	73	49	46	25	54
2009	129	68	53	28	18	64
2008	101	55	55	75	46	61
2007	174	88	51	26	19	73

University of Helsinki forest sciences students and degrees, doctoral level

	Total PhD students	Female PhD students	PhD students, % women	Total PhD degrees	Female PhD degrees	PhD degrees, % women
2018	172	105	61	9	4	44
2017	83	47	57	10	3	30
2016	93	49	53	17	8	47
2015	99	50	51	15	9	60
2014	114	58	51	10	6	60
2013	120	63	53	14	6	43
2012	119	61	51	13	8	62
2011	109	53	49	11	5	45
2010	107	56	52	7	2	29
2009	98	50	51	9	6	67
2008	105	46	44	8	6	75
2007	64	33	52	3	1	33

University forest science degrees in Finland, bachelor's and master's levels

	Total bachelor's degrees	Female bachelor's degrees	% women, bachelor's degrees	Total master's degrees	Female master's degrees	% women, master's degrees
2007	53	27	51	114	54	47
2008	146	75	51	248	106	43
2009	56	25	45	74	34	46
2010	135	53	39	109	44	40
2011	69	42	61	98	47	48
2012	74	30	41	89	32	36
2013	64	22	34	115	51	44
2014	77	31	40	94	35	37
2015	85	34	40	84	42	50
2016	102	34	33	80	28	35
2017	108	54	50	87	28	32

University of applied sciences (UAS) forestry degrees, bachelor's and master's levels

	Total bachelor's degrees	Female bachelor's degrees	% women bachelor's degrees	Total master's degrees	Female master's degrees	% women master's degrees
2010	225	59	26	8	1	13
2011	213	57	27	17	9	53
2012	209	55	26	13	3	23
2013	207	55	27	14	3	21
2014	193	48	25	5	4	80
2015	208	52	25	16	6	38
2016	170	30	18	16	6	38
2017	191	49	26	23	8	35

All forest sciences students at Finnish universities (UH & UEF)

	Bachelor			Master			Doctoral		
	Females	All	Bachelor's students % women	Females	All	Master's students % women	Females	All	Doctoral students % women
2011	201	562	36	119	271	44	61	145	42
2012	179	521	34	134	297	45	63	139	45
2013	200	553	36	128	277	46	68	151	45
2014	232	593	39	110	258	43	56	133	42
2015	225	582	39	120	282	43	51	131	39
2016	223	550	41	115	296	39	47	123	38
2017	229	535	43	130	314	41	47	105	45
2018	216	494	44	143	335	43	46	101	46

All forestry students at Finnish universities of applied sciences (UAS)

	Bachelor			Master		
	Females	All	UAS bachelor's students female share	Females	All	UAS master's students female share
2011	277	1227	23	14	63	22
2012	277	1215	23	15	56	27
2013	234	1110	21	22	63	35
2014	238	1040	23	21	69	30
2015	234	1005	23	26	86	30
2016	245	1003	24	21	84	25
2017	252	1009	25	25	90	28
2018	276	1044	26	21	76	28

Percentage of newly enroled female students in Finland

	Universities (UH & UEF)	Universities of Applied Sciences (UAS)
2015	36	26
2016	43	24
2017	50	28
2018	52	31
2019	N/A	49

Finnish Forest Centre

Employees	2012	2013	2014	2015	2016	2017
Total	686	660	630	569	599	567
Women	245	237	219	200	216	196
% Women	36	36	35	35	36	35

Ministry of Agriculture and Forestry

Employees	2018
Total	20
Women	12
% Women	60

Metsähallitus

Employees	2015	2016	2017
Total	1 466	1 488	1 224
Women	396	400	367
% Women	27	27	30

METO-Forestry Experts Association

Members	2013	2018
Total	7 911	6 321
Women	1 266	1 075
% Women	16	17

Loimu: forest science student members

Members	2018
Total	292
Women	188
% Women	64

Loimu members with Foresters' Union background

Members	2018
Total	1 901
Women	587
% Women	31

Forest owners who either solely or jointly own at least one hectare of forestry land

Source: Finnish Forest Centre, February 2019. Data Permit Dnro 318/08.00/2019.

The Whole of Finland (including Åland)

Sex	Count	Mean age	Number of estates per person	Mean total area (ha)	Mean forestry land area (ha)
Men	301,073	58.84	2.35	48.86	40.73
Women	211,979	60.27	1.86	36.83	31.71
Total	513,052	59.43	2.15	43.89	37.00

Continental Finland (excluding Åland)

Sex	Count	Mean age	Number of estates per person	Mean total area (ha)	Mean forestry land area (ha)
Men	298,312	58.84	2.35	48.99	40.84
Women	209,927	60.27	1.86	36.93	31.80
Total	508,239	59.43	2.15	44.01	37.10

Company	Year	% women	% men	Total, number
Otso Metsäpalvelut (Data retrieved from the listed contact persons on the homepage)	2018	7.7	92.3	120
Metsä Forest Wood Supply (Data provided by the company)	2018	17	83	570
Metsäliitto co-op (elected council, decision-making body of Metsä Group) (Data from the official election results)	2015	15	85	60
	2019	19	81	52
Stora Enso Wood supply Finland (Data provided by the company)	2018	23	76.9	450
UPM Forest (Data from the homepage that lists wood buyers)	2018	6	88.3	188

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8.5 Iceland

Research

Icelandic Forest Research	2018
Total	10
Women	4
% Women	40

Agricultural University of Iceland researchers	2018
Total	2
Women	1
% Women	50

Agricultural University of Iceland Faculty staff	2018
Total	30
Women	14
% Women	47

Agricultural University of Iceland PhD students	2018
Total	3
Women	2
% Women	67

Agricultural University of Iceland Technological program	2018
Total	86
Women	47
% Women	55

Education

Agricultural University of Iceland, bachelor students	2018
Total	
Women	
% Women	32

Agricultural University of Iceland, bachelor graduates	2018
Total	
Women	
% Women	47

Agricultural University of Iceland, total master's students	2018
Total	
Women	
% Women	33

Agricultural University of Iceland, graduated master's students	2018
Total	
Women	
% Women	

Interest group

Forester Association in Iceland	2011	2018
Total	23	55
Women	7	17
% Women	28	31

Icelandic Forestry Association

Icelandic Forestry Association	2005	2018
Total	6965	7105
Women	2939	3069
% Women	42	43

Forest Owners' Association

Forest Owners' Association Members	2018
Total	715
Women	228
% Women	32

Forest Owners' Associa-tion board members	2018
Total	21
Women	12
% Women	57

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SNS
Nordic Forest Research

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