# Nordic Forest Atlistics 2020

Resources, industry, trade, conservation and climate

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# Introduction

The Nordic region, which includes Denmark, Finland, Iceland, Norway and Sweden, is relatively small and sparsely populated. About 27 million people inhabit 1,138,000 km², part of it located north of the Arctic Circle. Forest and other wooded land cover 55% of the region, and in Finland and Sweden, this figure exceeds two-thirds, making them the most forested countries in Europe.

Despite the limited domestic demand for forest products in the Nordic countries, the region has a world-class forest industry, which has played a significant role in its wealth-building. The total forest area of all five countries is only 1.6% of the global forest area. Still, the paper and lumber exports account for 18% and 15%, respectively, of the two products international trade. The Nordic forest is a significant player in the combat against climate change, both as a provider of substitutes to fossil products and as a carbon sink through its growing stock. Besides, forests are home to thousands of species, some unique to the region, and they also constitute an appreciated recreation area for people.

This report presents selected statistics of forest resources, the forest industry, forest products trade, conservation, and forest-related climate impact from all the Nordic countries. Part of these statistics, country by country, can be found in databases and reports from, e.g., the EU and FAO. However, data from these sources is not always up to date, sometimes not harmonized, and not readily available.

Nordic Forest Research (SNS) decided to support this data compilation as a pilot study. The current report presents as up-to-date statistics as possible for forest resources, employment, forest industry, trade and prices, conservation, and climate mitigation. The aim is to support decision-makers, researchers, and media with comparable and quality-checked statistics, and present them in a format, which is easy to use in reports or presentations.

Each chapter includes charts, brief commentaries, and critical sources. Production, trade, and price data are predominantly covering the period from 2010 to 2019.

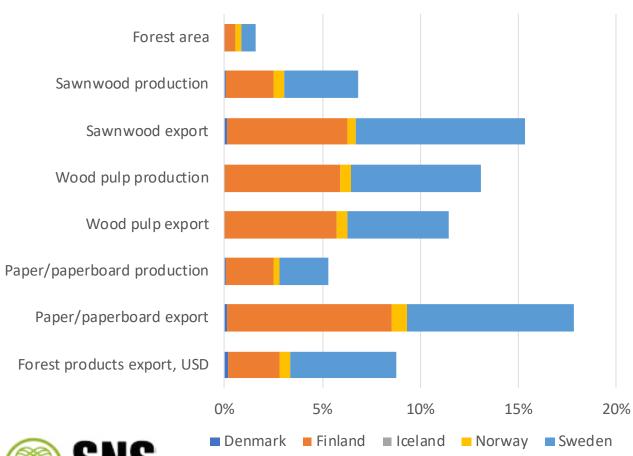
We hope that those reading the report will find it useful, and we look forward to any and all feedback from readers regarding changes in report format or coverage that they may find helpful in future editions.



# Small area – significant supplier

# Nordic forest industry in a nutshell

# Nordic countries' share of World's:



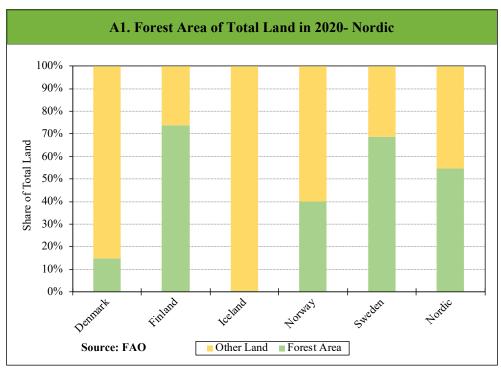


Sources: Forest Products 2017 (FAO), Global Forest Resource Assessment FRA 2020 (FAO). Sawnwood in share of m³, pulp and paper in share of tonnes.

# **A. Forest Resources**

#### **A1. Forest Area**

The forest area in the Nordic countries accounts for almost 55% of the total land area. Just over two-thirds of the land is forested in Finland and Sweden, while the shares of forest land in Norway and Denmark are relatively less, 40% and 15%, respectively. The forest cover in Iceland is approximately 50,000 ha of forests or about 0.5% of the total land area.



Million ha	Denmark	Finland	Iceland	Norway	Sweden	Nordic
Forest land	0.6	22.4	0.1	12.1	28.0	63.2
Prod. forest	0.5	19.2	0.0	5.6	19.6	45.0
Other wooded land	0.0	0.8	0.1	2.0	2.4	5.3
Other land	3.5	7.2	9.8	16.2	10.4	47.2
Total land	4.2	30.4	10.0	30.4	40.7	115.8
Forest land share	15%	74%	0.5%	40%	69%	55%

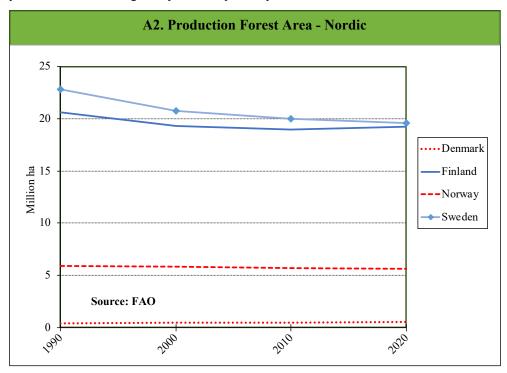
## **A2. Production Forest Area**

Production forest area is forestland that is not protected and where active management is not restricted. Over the past 30 years, the production forest area has declined in Finland (-7%), Norway (-4%), and Sweden (-14%), while rising in Denmark (+21%) and Iceland (up six-fold from a low level). Most of the decline is the result of expansions of protected areas in the region. The Nordic countries' production forest area is currently close to 45 million ha, down from almost 50 million ha in 1990. The production forest land in this region accounts for 76% of the total production forest area in Europe.

Finland and Sweden both have about 20 million ha of forest land managed for log production to supply the domestic forest industry, both lower than in 1990, according to FAO. Norway's production forests have declined from 5.9 million ha to 5.6 million ha the past 30 years. During the same period, Denmark's actively managed forest area increased from an estimated 417,000 ha in 1990 to just over half a million 500,000 ha in 2020.

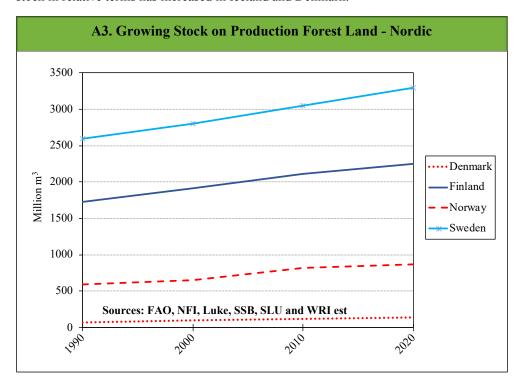
Iceland has a minimal area of production forests. In 2020, it is estimated at approximately 18,000 ha, up from 8,000 ha in 2000, and from 14,000 ha in 2010.

It is interesting to note that, according to the FAO, there has not been any change in the production forest area globally over the past 30 years.



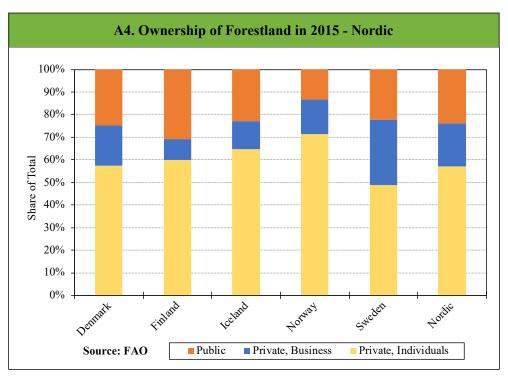
# **A3. Growing Stock**

The growing stock on production forest land has gone up substantially in the Nordic countries over the past 30 years. The steady rise in timber supply has been impressive with an almost one percent annual increase, resulting in 26% more volume in 2020 than in 1990. The most significant nominal increases have been in Finland and Sweden, while the growing stock in relative terms has increased in Iceland and Denmark.



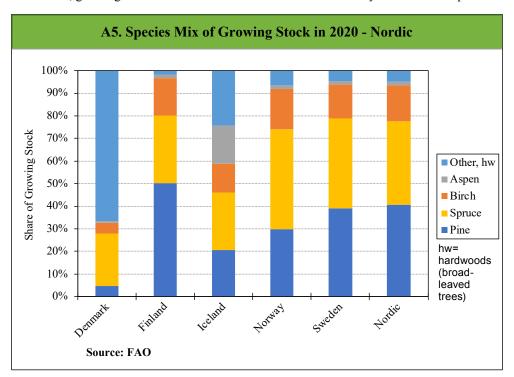
# **A4. Ownership of Forest Land**

Seventy-five percent of the Nordic countries' forestland is privately-owned, with individuals or families owning most of the forests. Finland has the highest share of publicly owned forests (31%), and Norway the smallest percentage (20%).



# **A5. Tree Species Mix**

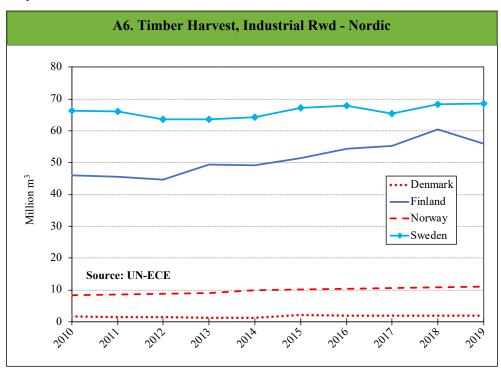
Coniferous species dominate the Nordic forests with pine and spruce accounting for 78% of the growing stock. Seventy-one percent of the broad-leaved species are birch, with the remaining 29% being smaller volumes of aspen, alder, maple, oak, and beech. Pine is the dominant species in Finland and Sweden, while spruce is the most common species in Norway. In contrast, growing stock in Denmark and Iceland is dominated by broad-leaved species.

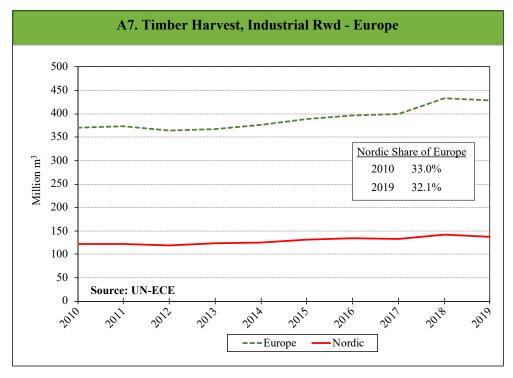


## **A6-A7. Timber Harvests**

Harvests of industrial roundwood in the Nordic countries have trended upward for over a decade. In 2019, an estimated 137 million m<sup>3</sup> was harvested, up from 122 million m<sup>3</sup> in 2010. The Nordic's share of the total timber harvest in Europe has fallen slightly from 33% in 2010 to 32.1% in 2019, mainly because of substantial increases in log production in the Czech Republic and Germany secondary to insect infestations and storms over the past few years.

Finland and Norway have seen the most significant increases in roundwood removals in the past ten years. In Finland, harvests grew from 46 million m³ in 2010 to an all-time high of 60 million m³ in 2018, followed by an eight percent year-over-year decline in 2019. Norway also reached record high harvest levels, with 2019 volumes being 33% higher than in 2010. Changes in log production in Denmark and Sweden have been more modest over the past decade.

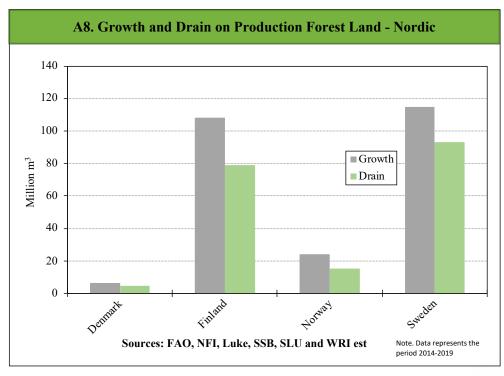




# **A8. Timber Growth and Drain**

The annual increase in growing stock is substantially higher than the fellings in all the Nordic countries. The drain (roundwood removals plus dead trees) to growth ratio ranges between 63% to 76% for the four nations, with the region's average being 73%.

It is important to note that the substantial gap between growth and drain is not necessarily an indication that harvest levels can increase fully to the estimated annual growth. It means instead that there is a potential to raise harvest levels incrementally in all countries, and that the growing stock will continue to increase in the Nordic countries in the coming years.





# **B. Forest Industry Production**

## **B1. Industry importance**

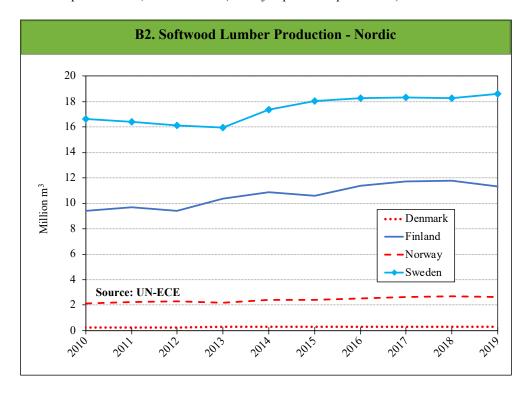
The importance of the forest industry varies considerably between the five Nordic countries. In Finland and Sweden, the sector has long been very important, both as an important employer in rural communities and for contributing the societal wealth by being the number one net exporting manufacturing sector of the two countries. In Norway the forest industry is quite small, and it has continued to decline the past decade, particularly the pulp and paper sectors. Denmark does not have a large primary processing wood industry because of the lack of domestic forest resources and its importance to the country's economy is limited.

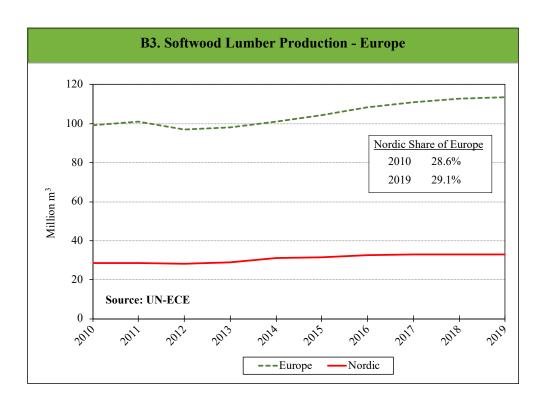
The employment in logging and processing industries have trended downward over many decades as the automation has reduced the need for labor. In 2019, an estimated 120,000 people worked directly or indirectly in the forest industry of with forestry-related work in Sweden, and in Finland, an estimated five percent of the total work force, or 110,000 people were directly, or indirectly, reliant of the forest industry in 2019.

In both Finland and Sweden, the forest industry is the biggest net exporter of manufacturing goods. In 2019, the total export value for forest products for Finland and Sweden was approximately 20% of the total export value while the share was about 10% in Sweden.

#### **B2-B3. Softwood Lumber Production**

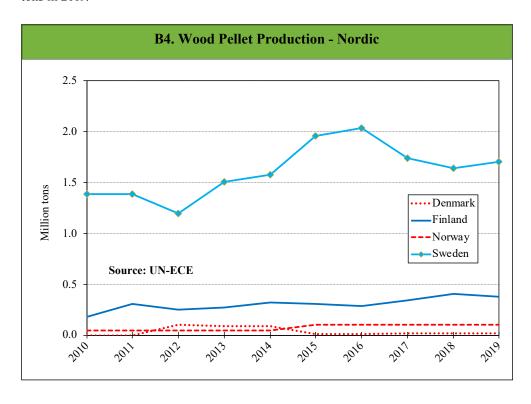
About 30% of Europe's softwood lumber production occurs in the northern part of the continent, a share that has remained practically unchanged the past decade. In volume terms, the Nordic countries sawmills' output rose from 28.4 million m³ in 2010 to 33.0 million m³ in 2019. Production has gone up in all countries, with the most significant volume increases seen in Finland and Sweden. From 2010 to 2019, the annual output in these two countries rose by two million m³. Norway's production has gone up 25% in ten years to reach 2.6 million m³ in 2019, while Denmark produced 320,000 m³ in 2019 (a 33% jump over the past decade).

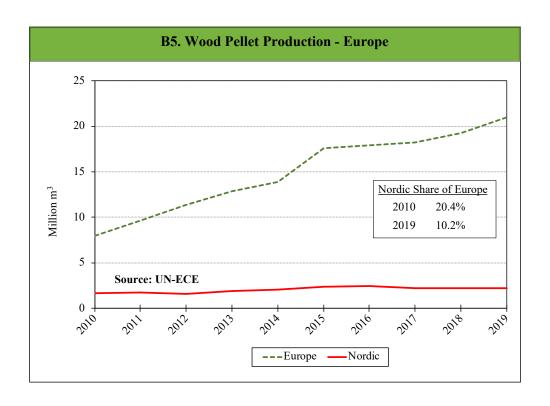




## **B4-B5. Wood Pellet Production**

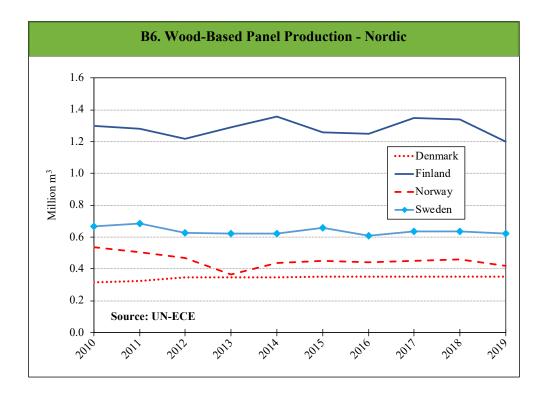
Sweden produced 77% of all wood pellets manufactured in the Nordic countries in 2019, followed by Finland (17%), Norway (5%), and Denmark (1%). The region's total production reached 2.2 million tons in 2019, up from 1.6 million tons in 2010. The increase of 36% in ten years pales in comparison to the expansion in production in the rest of Europe, where total pellet production in Europe has increased by 136% in the past decade to reach 21 million tons in 2019.

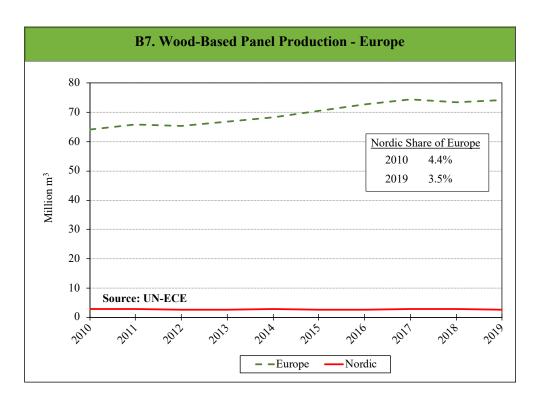




## **B6-B7. Wood-Based Panel Production**

Production of wood-based panels, including plywood, OSB, particle board, and fiberboard, fell year-over-year to 2.6 million m<sup>3</sup> in 2019, the lowest level in over ten years. This sector is quite small in the Nordic countries, with the total production accounting for less than four percent of Europe's total panel production. Finland produces almost half of the volume manufactured in the Nordic region, most of which is plywood.

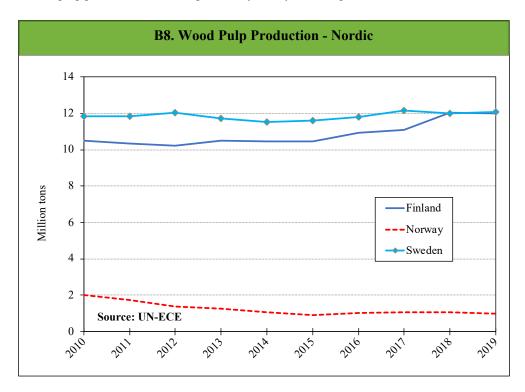


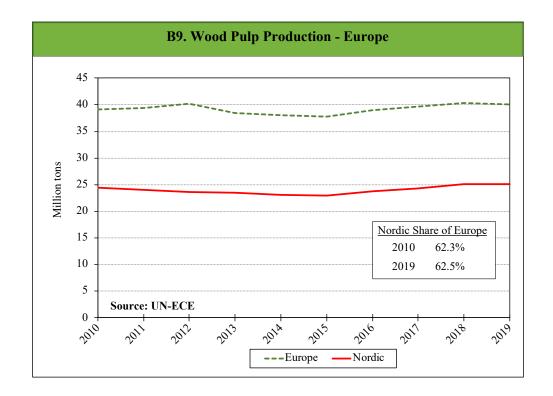


# **B8-B9. Wood Pulp Production**

The Nordic region has seen a small, steady increase in pulp production from 2010 to 2019. Pulpmills in Finland and Sweden have boosted output by 14% and 2%, respectively, while Norway reduced production by 51% over the past decade. Pulp production in Finland and Sweden was practically the same, at 12 million tons in 2019, and Norwegian pulpmills produced about one million tons.

The Nordic pulpmills produce a clear majority of pulp in Europe, with the Nordic share of total pulp production remaining relatively steady over the past decade at between 59-62%.





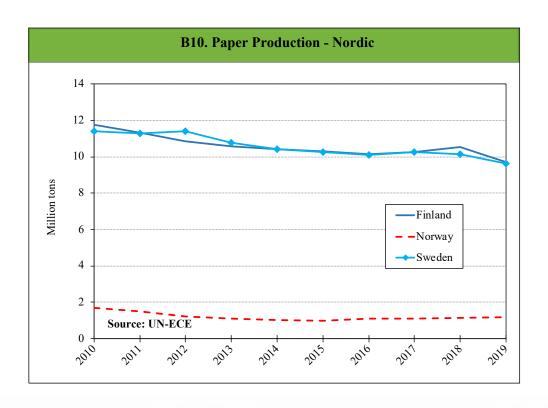
The Nordic countries share of the European wood pulp production is 62%.

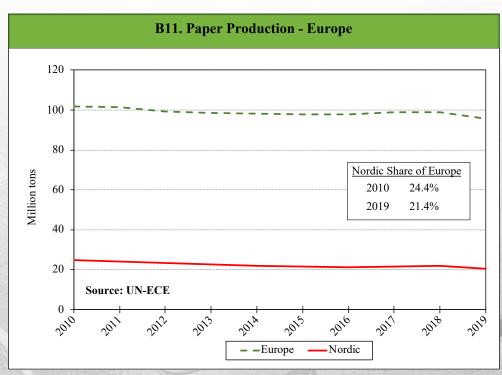
# **B10-B11. Paper Production**

Paper and paperboard production has fallen in all three paper-producing countries, Finland, Norway, and Sweden, the past decade, with total output dropping from 24.9 million tons in 2010 to 20.5 million tons in 2019. The most significant decline occurred in Norway, where paper manufacturing was down 33% compared to Finland and Sweden, where the reductions were only 17% and 16%, respectively. A majority of the decline has been of newsprint and office papers, while the production of most hygiene and paperboard grades have increased.

Total paper manufacturing in Europe also fell over the past decade, although not at the same pace as in the Nordic countries. As a result, production in Northern Europe has fallen from 24.4% to 21.4% of the continent's total paper production.







# C. Forest Products Export and Import

## **C1-C6. Roundwood Trade**

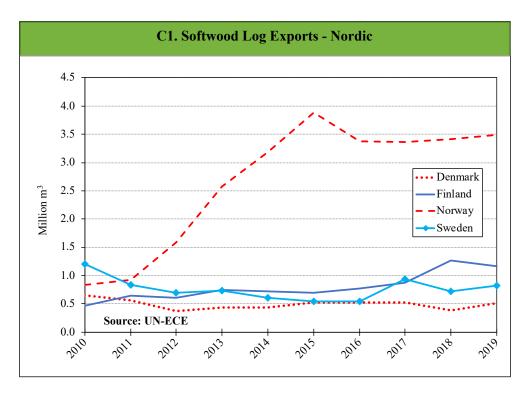
The Nordic region is a significant net importer of both softwood and hardwood logs. In 2019, it imported almost ten million m³ of roundwood, with a majority originating from Russia and the Baltic States. The most significant intra-regional trade was in softwood logs (mostly pulplogs) from Norway to Sweden and softwood sawlogs from Finland to Sweden.

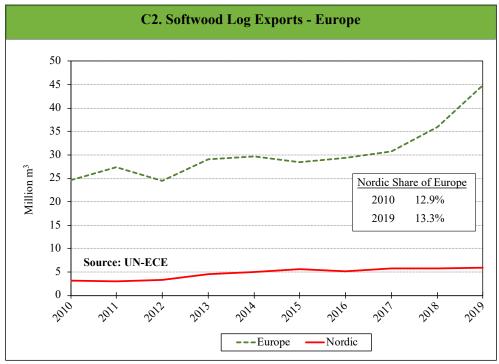
Net imports reached almost 10 million m<sup>3</sup> in 2019, down 13% from 2018, but close to the annual average for the past ten years.

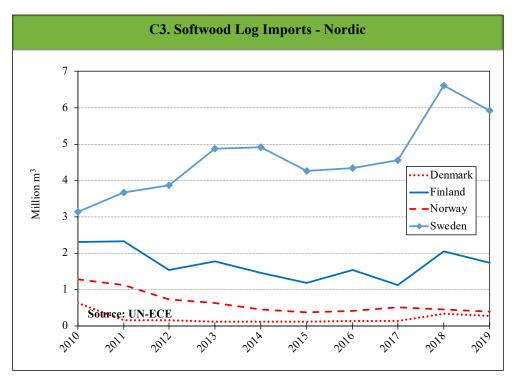
Norway exports a large percentage, about one-third, of the country's timber harvest in log form. In 2019, the country shipped 3.5 million m³ of softwood logs, a majority to sawmills, and pulpmills in Sweden. The exportation of hardwood logs from the Nordic countries is very limited. In 2019, Finland exported to Sweden, Poland, and Slovakia, and the Swedish shipments totaled only 37,000 m³ with customers in Finland, China, Denmark, and Poland.

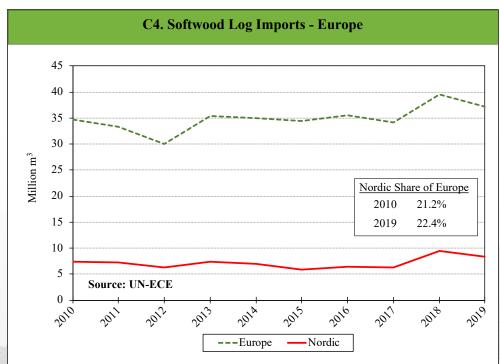
The biggest importing country in Northern Europe is Sweden, which in 2019 imported almost six million m<sup>3</sup> of softwood logs and three million m<sup>3</sup> of hardwood logs. A majority of the wood originated from countries in the Baltic Sea region. The largest trading partners in 2019 were Norway (34%), Latvia (21%), Estonia (15%), and Finland (13%).

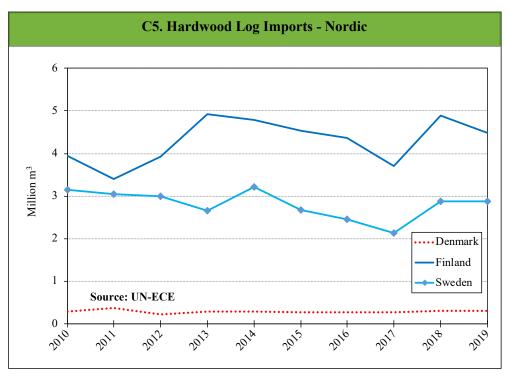


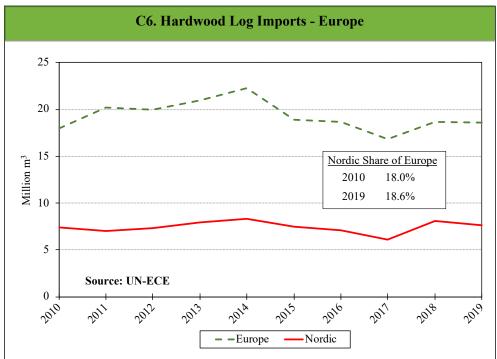








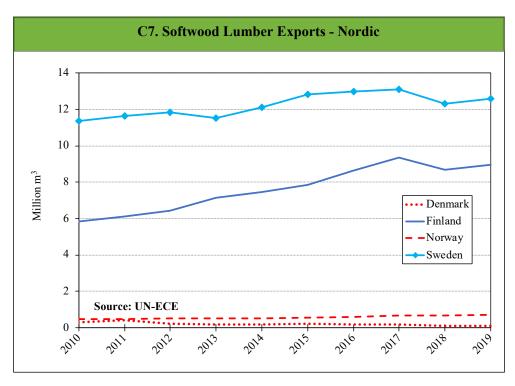


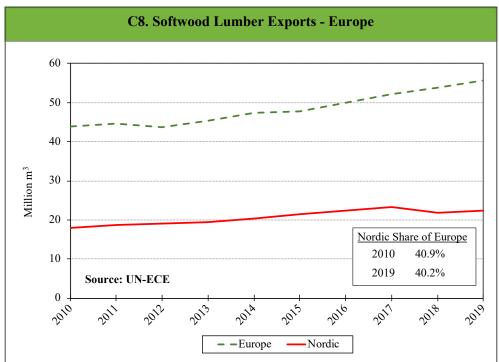


# **C7-C8. Softwood Lumber Exports**

Over 40% of European softwood lumber exports are from sawmills in the Nordic countries. In 2019, the total volume reached 56 million m³, the third-highest volume on record. Sweden shipped 12.6 million m³, Finland 9.0 million m³, Norway 710,000 m³, and Denmark 80,000 m³.

Stagnant wood demand in Europe, readily available log supply in Northern and Central Europe, and a lack of forest resources available to supply domestic lumber manufacturers in major wood-consuming regions worldwide has created opportunities for sawmills in the Nordic countries to increase production and export outside Europe. In 2020, over 65% of Finland's lumber exports have gone to markets outside Europe, while Swedish sawmills have shipped about 45% of their lumber exports overseas.

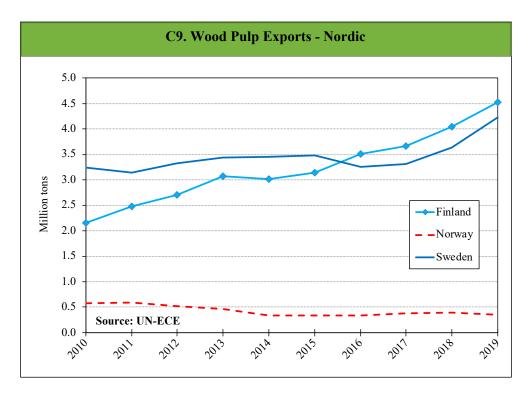


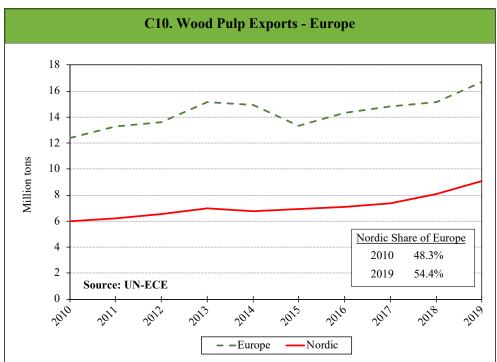


# **C9-C10. Wood Pulp Exports**

Pulp exports from Finland and Sweden have gone up almost 66% the past decade, from a total of 5.3 million tons in 2010 to 8.8 million tons in 2019. During the same period, Norwegian pulpmills have reduced shipments from 580,000 tons to 350,000 tons. The Nordic pulp industry has expanded not only export volumes but also its share of Europe's total shipments. In 2019, this share was 54.4%, up from 48.3% in 2010.

Finland has become the largest exporter of pulp in Europe. An impressive annual increase of almost eight percent has resulted in a more than doubling of export volume from 2010 to 2019. Much of the expanded sales have been driven by the dramatic rise in pulp demand from China. About 41% of Finnish exports are destined for this fast-expanding market, followed by Germany (13%), Italy (6%), and the Netherlands (6%).

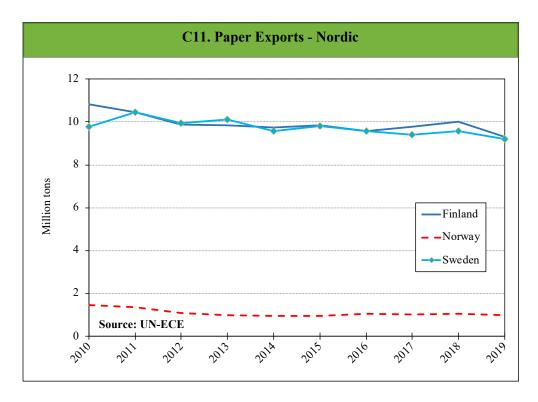


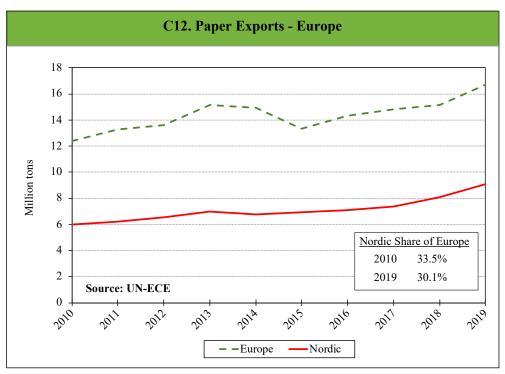


# C11-C12. Paper Exports

Lower demand for newsprint, printing and writing papers in Europe has reduced the exportation from manufacturers in Finland, Norway, and Sweden. The 2019 shipments of 19.5 million tons were the lowest in at least ten years and down 12% from 2010. The paper industry in Norway has been particularly hard hit with export volumes (mostly newsprint) dropping 34% over the past decade. The declines in Finland and Sweden have been more modest at 14% and 6%, respectively.

The cost of wood raw material is the factor that often determines the competitiveness of a pulp manufacturing plant or a sawmill. These costs vary between 45-75% of the total production cost depending on the product grade and market conditions. In this section, prices for sawlogs and pulplogs delivered to manufacturing plants are reported for the major producing countries over the past decade. The country-wide average prices are compared to the European Sawlog Prices Index (ESPI) and the Global Wood Fiber Prices Indices for softwood and hardwood fiber.



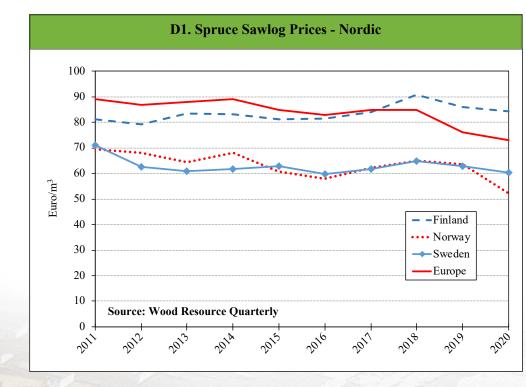


# **D. Wood Raw-Material Prices**

## **D1. Softwood Sawlog Prices**

Sawlog prices have trended downward in all three major markets the past few years, following a extended period of only small price adjustments. The most significant decline during 2019 and early 2020 has been in Norway, where average spruce sawlog prices fell 12%, from  $\epsilon$ 63/m³ in 2018 to  $\epsilon$ 52/m³ in the first half of 2020. Current prices in Norway are their lowest they have been in 20 years. Sawlog prices have also fallen in Finland and Sweden the past two years after having reached 12-year highs in the two countries local currencies in the 2018. The recent price decline in the Nordic countries have followed a similar trend as the rest of Europe. The European Sawlog Price Index (ESPI), which tracks prices in the nine largest log-consuming countries in Europe, fell by approximately 14% from 2018 to 2020.

As a consequence of the lower raw-material costs, Nordic lumber producers have become more globally competitive. Some noteworthy achievements are that Sweden has become the largest overseas lumber suppliers to the US the past several years, and that Finland and Sweden have increased their market shares in overseas supply to China from 13% to 22% over the past five years.

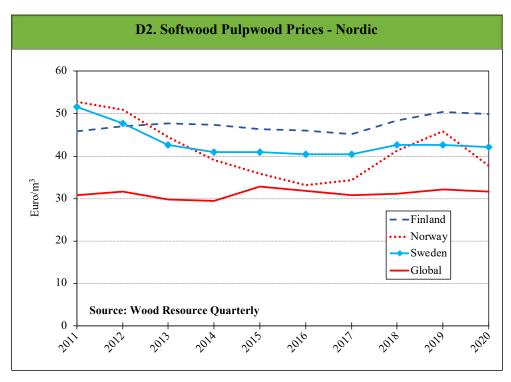


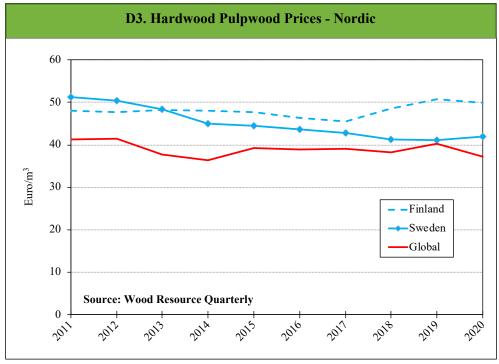
The recent price decline in the Nordic countries have followed asimilar trend as the rest of Europe.

# **D2. Pulpwood Prices**

Pulpwood prices have been relatively stable in Finland and Sweden the past seven years, except for a bump in Finland in 2018 when both softwood and hardwood pulplog prices jumped about ten percent. Softwood fiber prices in Norway where in a steady decline from 2011 to 2016 when the domestic pulp industry downsized. Tighter fiber supply and increased competition for pulplogs from the export market, pushed prices upward to a seven-year high in 2019.

Pulpwood prices in the Nordic countries continue to be substantially higher than world market prices. The Global Softwood Fiber Price Index (SFPI) and the Global Hardwood Fiber Price Index (HFPI) have continuously been lower than average prices in all three pulp-producing countries in Northern Europe, particularly for softwood pulpwood.

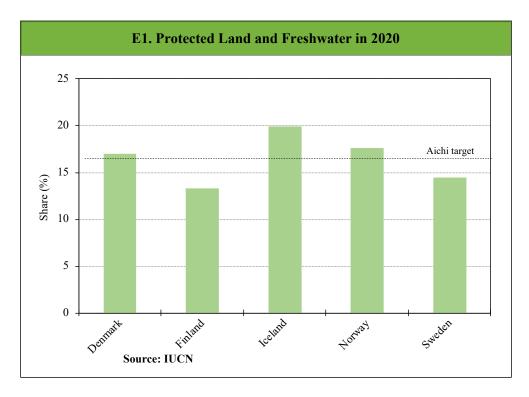




# **E. Climate and Environment**

#### **E1. Protected Nature**

According to criteria set up by the International Union for Conservation of Nature (IUCN), each of the Nordic countries reports their formally protected sites to the European Environmental Agency. The protection data is, among other things, used as a measure to meet the Aichi target 11, which aims at protecting 17 % of the land- and freshwater area. Aichi Biodiversity Targets is an overall conservation target aiming to halt the decline of biodiversity to 2020, signatured in Nagoya 2010.



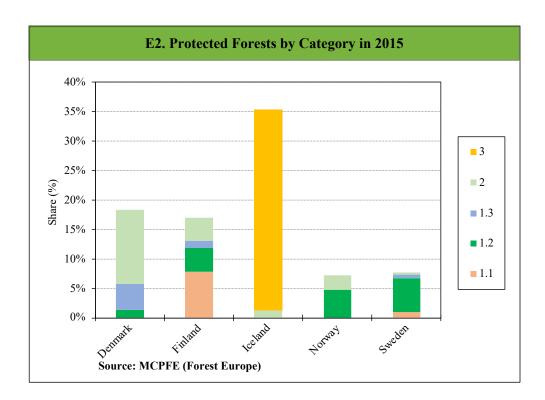
The IUCN statistics are based on the categorization of nature reserves by degree of protection. For example, from the strictest protection (category Ia) to the least protected which is a protected area in which allows the sustainable use of natural resources (category VI). The Nordic countries have a high share of the stricter categories (I and II), while many Central European countries have a high proportion of category V and VI, which allow the management of natural resources. Voluntarily set aside land is not included in the figures, although these comprise a high share of the protected land, particularly in Sweden.

#### **E2-E4. Protected Forests**

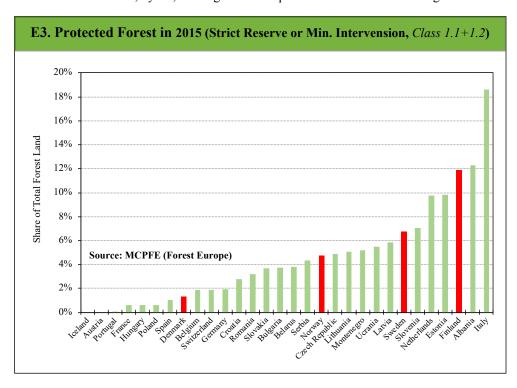
Statistics of protected forests are assembled every fifth year by FAO and Forest Europe in line with The Ministerial Conference on the Protection of Forests in Europe (MCPFE). Each country reports its protected forest area in one of five categories:

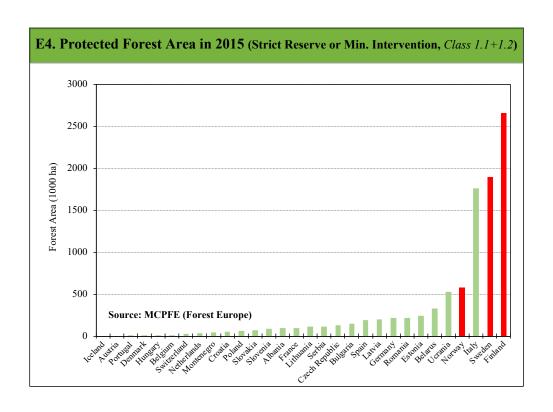
- 1.1 No intervention (no direct human intervention, limited public access)
- **1.2** Minimum intervention (human intervention is limited)
- **1.3** Conservation through active management (active interventions to achieve specific conservation goals)
- 2. Protection of landscapes and specific natural elements (restricted use of forest resources, management goals to preserve landscape diversity, cultural, aesthetic, spiritual and historical values, recreation, or specific natural elements.
- **3.** Protective functions (management to protect soil or water quality, ecosystem functions, infrastructure, and manage natural resources against natural hazards)

Finland and Sweden have, by far, the largest area of protected forests in Europe, when comparing the more strict protection categories.



The average share of protected forests in all categories varies from 5% in Norway to 35% in Iceland. When only the stricter categories are compared (1.1-1.2 corresponds to strict reserves and minimum intervention), the share of protected forest land in Finland, Sweden, and Norway rank higher in a European comparison. When the land area is compared, Finland and Sweden have, by far, the largest area of protected forest in these categories.

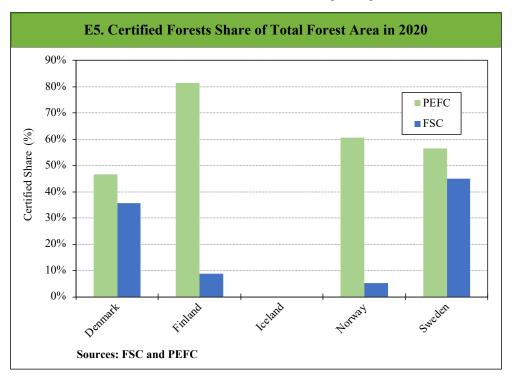




## **E5. Certified Production Forests**

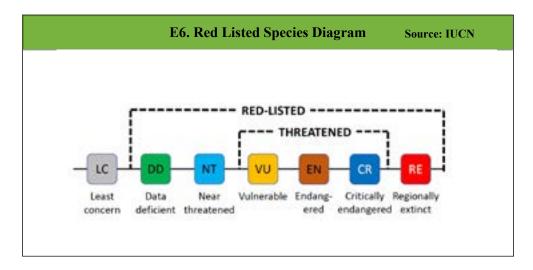
Forest certification is a voluntary process whereby an independent third party (the "certifier") assesses forest management and production quality against a set of standards. There are two types of certification: 1) forest management, which assesses whether forests are managed sustainably and responsibly, and 2) chain of custody, which verifies that certified material is identified and kept separate from non-certified, or non-controlled material from the forest to the final consumer.

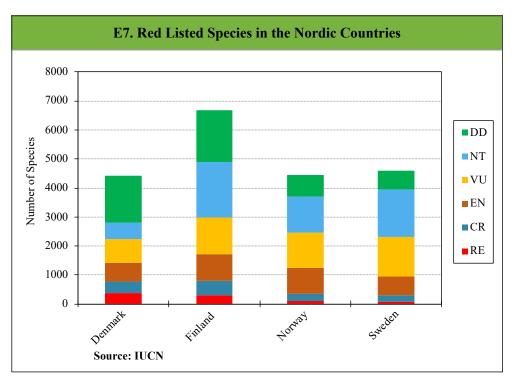
Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC) are two primary certification schemes. PEFC is the largest certification framework in terms of forest area, while FSC is the fastest-growing scheme.



# **E6-E7. Red-Listed Species**

The International Union for Conservation of Nature (IUCN) Red List of Threatened Species was founded in 1964 and is a comprehensive inventory of biological species' conservation status. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies. IUCN has a global list, but each country produces its national list. Iceland's Red List is not complete for all organism groups; thereby, it is excluded from the diagram below.



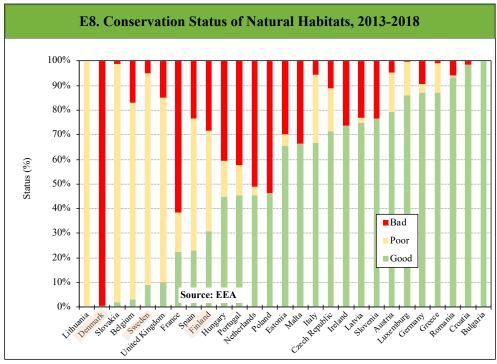


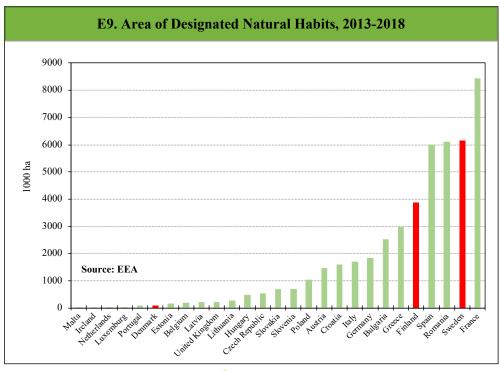
## **E8-E9. Habitat Directive Reporting**

The European Union countries are obliged to report the conservation status according to the Habitats Directive, adopted in 1992 (EEA, the Council Directive 92/43/EEC.). A set of 230 specified natural habitats are monitored throughout the EU. Many of them are designated to Natura 2000-areas (a network of protected sites in Europe) to secure their conservation. Several habitats are present in the Nordic countries, in Sweden for example, there are 89 habitats and 4000 Natura 2000-areas.

The status of the habitats is reported as being Good (favourable), Poor (unfavourable-in-adequate) or Bad (unfavourable).

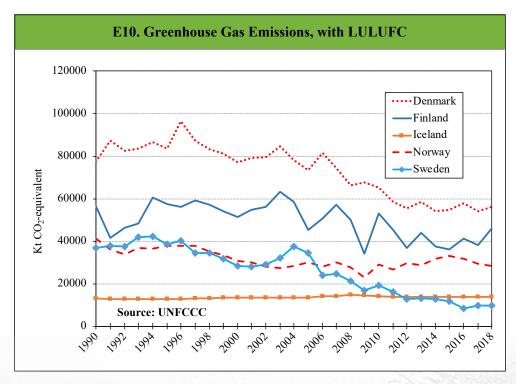
Sweden and Finland have by far the highest area of boreal forest within the specified habitats. However, a large proportion of the forest habitat area is reported as bad or poor in these countries compared with other EU countries. Each nation sets its criteria for reporting. There is some debate about the low status reported by Sweden (and Finland) due to a high expected natural potential area of the habitats.





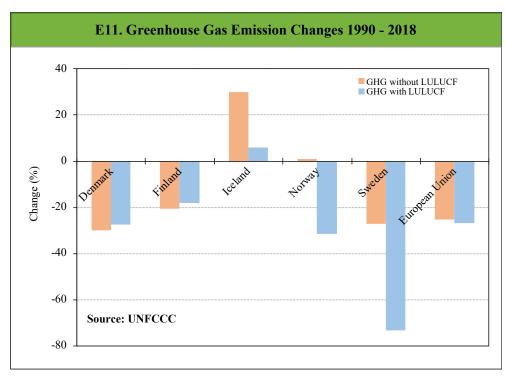
## **E10. Greenhouse Gas Emissions and LULUCF**

All countries that have ratified the United Nations Framework Convention on Climate Change (UNFCCC) report their climate impact data. Here we show total greenhouse emissions in kiloton CO<sub>2</sub>-equivalents and LULUCF (Land use, land-use change, and forestry). LULUCF is defined by the United Nations Climate Change Secretariat as a "greenhouse gas inventory sector that covers emissions and removals of greenhouse gases resulting from direct human-induced land use such as settlements and commercial uses, land-use change, and forestry activities." LULUCF has impacts on the global carbon cycle, and the land-use activities can add or remove carbon from the atmosphere. Forest land usually removes carbon, thereby lowering the climate impact.

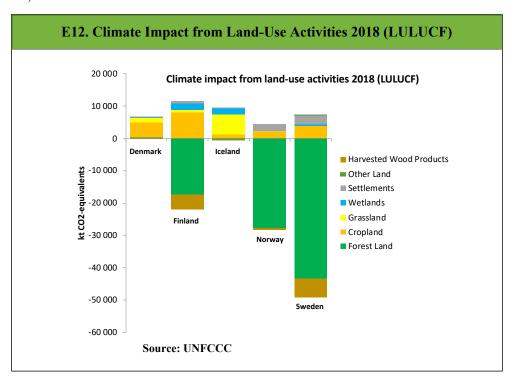


All countries except Iceland have reduced their greenhouse gas emissions since 1990 when the LULUCF-factor was included. Sweden lowered its emissions (including LULUCF) by 73%, while the European Union average dropped only 27%.





The figure shows the impact of the various land-use activities, which add up to the total LULUCF. The statistics clearly demonstrate the positive effect, displayed as negative figures in LULUCF, of forest land in Norway, Finland, and Sweden and the negative impact of Grassland and Cropland. Detailed data and time-series of greenhouse gas emissions divided by gas and sector per country can be downloaded from UNFCCC's webpage (see References).



# References

- Artdatabanken, SLU. Rödlistade arter i Sverige 2020.
- **EEA** (European Environment Agency), <u>dashboard proportion of area of habitat types</u>.
- **EEA** (European Environment Agency), <u>The Habitats Directive</u>, the Council Directive 92/43/EEC.
- Environment.fi. The 2019 Red List of Finnish species.
- FAO, Global Forest Resources Assessment 2015.
- **FAO**, Global Forest Resources Assessment 2020.
- FAO, Yearbook of Forest Products 2017.
- Forest Europe. <u>State of Europe's forests 2015 Report</u>. (data about protected forests in Europe).
- FSC (Forest Stewardship Council), Facts and Figures (Archive 2012-2019).
- FSC (Forest Stewardship Council), <u>Facts and Figures</u> (with countrywise data in GIS-map).
- Global Trade Atlas.
- Institute for Bioscience, Aarhus universitet. Den danske Rødliste 2019.
- IUCN, Protected Planet (data about protected nature).
- Landsskogstakseringen, SSB, Norge.
- Norwegian Biodiversity Information Center, Norwegian Red List for Species.
- **PEFC** (the Programme for the Endorsement of Forest Certification), <u>Facts</u> and <u>Figures</u>.
- Skogsindustrierna.
- SLU, Forest Statistics.
- Statistisk sentralbyrå.
- United Nations Economic Commission for Europe (UN-ECE). Who owns our forests?
- United Nations Framework Convention on Climate Change (UNFCCC), GHG data from UNFCCC. Greenhouse gas profiles for Annex I Parties.
- University of Copenhagen. Danish National Forest Accounting Plan.
- Wood Resource Quarterly, 2020. Prices and Trade of Sawlogs, Pulpwood, Pellet, Lumber and Pulp.