Heavy windthrow in Europe

In December 1999, more than 190 million cubic metres of wood was blown down by storms in Europe. Northern Europe was hit on December 3–4, Central Europe on December 26–28.

France was the single most heavily affected country, with a loss of 140 million m^3 – more than three times the normal annual cut.

Switzerland was also badly struck, with a windthrow corresponding to almost three years' normal cut.

In Denmark, 3.7 million m^3 was uprooted, compared to an annual cut of 2 million m^3.

Source: http://www.unece.org/trade/timber/storm/statistics.htm

600 million seedlings

In 1998, some 610 million seedlings were produced in the Nordic forest nurseries. Sweden was the biggest producer, followed by Finland and Denmark (see table).

Norway spruce was the most popular tree species, and Scots pine the second.

Seedlings in containers were easily the most common, with a market share of 80%.

These and other facts about Nordic nurseries are presented in a report published by the "Nordic Nursery Council".

The report also gives a brief summary of recent research efforts related to production of forest seed and seedlings. Some 175 Nordic scientific articles and reports published from 1993 to 1998 are listed.

Source: Arbetsrapport nr 438 from SkogForsk

	Denmark	Finland	Iceland	Norway	Sweden
Millions of seedlings for afforestation	98	150	4,5	48	310
No. of nurseries with own production	65	105	15	29	51
Types of seedlings					
Containerised seedlings, %	1	87	99	95	80
Bare-root seedlings, %	99	13	1	5	20
Distribution of tree species					
Norway spruce, %	40	45	0,5	85	63
Scots pine, %	10	42	0	9	34
Other conifers, %		2	68	5	2
Birch, %		10	25	1	1
Other hardwoods, %	50	1	6,5	0	0

Urban Forestry in the Nordic Countries

In a new project, a multidisciplinary team from all Nordic countries will identify, develop and test tools for urban forest planning & design, selection & establishment, and management. These tools should assist practitioners in dealing with site-related and specific needs within urban forestry in the Nordic countries.

The project will develop instruments for urban forest planning and design. There is a need, for example, to identify ways to incorporate detailed information on social, economic and ecological values into the planning process.

A second part of the project will consist of natural regeneration trials in urban areas. A third element will be concerned with identifying how traditional silvicultural practices need to be adapted to meet the specific needs of urban areas.

Integrative approach

The project will assess 'urban forestry' in an integrative approach. The urban forest does not consist solely of woodland resources, but also of trees in parks and open spaces, along streets and in backyards. In recent years, all the participants in this study have been involved in developing urban forestry research in the Nordic countries, for example through previous SNS-projects and COST Action E12 "Urban Forests and Trees".

Participating countries are Denmark, Finland, Iceland, Norway and Sweden. The project co-ordinator is Dr. Thomas B. Randrup at the Danish Forest and Landscape Research Institute, Hörsholm.
SNS grant: €53,750 per annum.

An urban landscape. There is a need for easily accesible forests.

New SNS' projects

SNS (The Nordic Forest Research Co-operation Committee) has decided to support two new projects. The projects, which will be carried out during 2000–2002, are presented here.

Root rot "resistance"

Root-and-butt rot in Norway spruce caused by the root-rot fungus *Heterobasidion annosum* causes large economic losses in Scandinavia. The fruitbody of the fungi produces millions of spores which are dispersed by the wind over long distances. The spores settle and germinate on freshly cut stumps where they develop into a mycelium which colonizes the entire stump and then, via root-contacts with trees nearby, rapidly spreads from tree to tree in a stand. In optimal conditions for the fungus, a stand may be destroyed within 30 years.

Previous investigations have shown that resistance in Norway spruce to *H. annosum* is under genetic control. If less susceptible clones could be used in future breeding programmes, damage caused by the fungus may be reduced.

In a new project, called "Genetic variation and resistance mechanisms in Norway spruce (*Picea abies*) to growth of the root and butt rot fungus *Heterobasidion annosum*", further investigations will be made on:

- Selection procedures and genetic quantification of resistant clones (Norway)
- Genetic variation between clones in the way the fungi transfers between stump and tree (Denmark)
- Infection pattern and variation among clones in *H. annosum* infected stands of Norway spruce clones (Sweden)
- Longterm fieldtests of clones already tested for resistance (Sweden)

- Importance of specific genes for resistance/susceptibility in Norway spruce (Sweden)
- DNA- markers and QTL for resistance genes (Denmark)
- Comparisons between extractives from the wood of resistant/ susceptible clones of Norway spruce (Finland).

Participating countries are Denmark, Finland, Norway and Sweden. The project co-ordinator is Dr Gunilla Swedjemark at the Forestry Research Institute of Sweden.
SNS grant: €59,500 per annum.

Summer cuttings under attack

Stop cuttings for summer! No harvesting from April 15 to July 31! These are demands from Finnish environmentalists. "A lot of birds' nests are destroyed by the machines, and even more breeding fails due to disturbance from the machines", they say. "It is not a question of survival for any single species. It is a question of morality", says Mr Erik Schulman, chairman of one Finnish environmental NGO.

The environmentalists have other arguments for the proposed "summer peace" in the forest. "Harvesting in summertime causes a lot of damage to the trees and the ground. It also creates entry points for root rot", they say.

Summer harvesting is not only a threat to nesting birds. It also causes a lot of damage to the ground.

Forest industry opposition

The forest industry has a different opinion. "The industries have a need for fresh wood all through the year", they say. "It is impossible to store all the wood we need under snow over the summer, as has been suggested".

The industry also believes that the damage caused by cutting operations in summertime is exaggerated. "Only one tenth of a per cent of the breeding birds in the forests are affected", they say.

Source: Skogsbruket 2/2000

New products from the forests

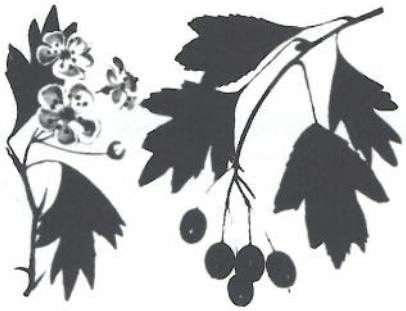
Plant medicine

In Denmark, a new centre for plant medicine has been established. The objective is to promote domestic production of raw material. The centre will work with products that have scientifically proven effects.

The Danish Forest and Landscape Research Institute is one contributor to the centre. The ambition is to find new "niche crops" for the foresters.

Two species have been specifically mentioned: hawthorn (used in treating cardiovascular diseases) and ginseng. The latter can be raised as undergrowth in broad-leaved forests in Denmark.

Two future crops in Danish forests?
Left: Ginseng
Below: Hawthorn



Source: Skoven 1 2000.

New Danish Centre:

Forest and Landscape initiative

The logotype for new centre

A new Forest & Landscape centre will co-ordinate Danish forest research, education and extension in a co-operative strategy linking three independent bodies:

- The Department of Economics and Natural Resources at the Royal Danish Veterinary and Agricultural University
- The Danish Forest and Landscape Research Institute - a sector-oriented research institute under the Ministry of Environment and Energy.
- "The Forest school", a nation-wide centre for education in forestry and landscape management.

The centre has been established to facilitate synergetic effects and is designed to develop into an international centre of competence. It will concentrate on four main areas:

- Forests, forest products and decorative foliage
- Parks and landscapes
- Planning
- Outdoor activities and tourism

The staff at the centre comprises some 400 persons. They will be employed by their "old" organisations, but co-operate in more than 30 interdisciplinary groups.

Source: Skoven no. 2/2000

Swedish Research and Development Conference 2000

IT to play a major part in future forestry

IT is pushing back the boundaries of forestry—this was the message that came across loud and clear from all the speakers at the four regional R & D conferences recently arranged by SkogForsk (The Forestry Research Institute of Sweden).

Thanks to ever-faster computers and an effective flow of information, tomorrow's forestry will readily be able to adapt its output to the needs of its customers.

Anyone thinking that forestry has been rationalized as far as it can go could not be more mistaken. On tomorrow's forest machines, the operator will be able to focus on what people are good at—and leaving the monotonous and repetitive tasks to the machines and their computers.

Computers are capable of optimizing highly complex tasks, such as planning timber-haulage operations and choosing the right logging sites. It is even conceivable that conservation work could be optimized!

But the conference was not just about computers and technology. Untapped potential for the development of people and organizations was also identified by several speakers. In the final session, the focus was on forest-tree breeding and forest management for improved forests in the future.

Source: SkogForsk-Nytt no. 1/2000

Presorted pulpwood can provide paper with higher tensile strength. John Arlinger

Tree improvement is producing higher increment in our forests. Per Ståhl

We can improve the quality of our forests. Sten Frohm

Snags for biodiversity

If you travel in a managed Nordic forest landscape, you will most surely see a lot of snags left in new clear-felled areas. They are normally one to five metres high, most often of Norway spruce.

To leave high stumps is a new practice, and an element of the new, more environmentally friendly forest-management practised since the beginning of the 1990s.

According to the biologists, there is a lack of dead and decaying wood in the Nordic forests. The snags will, hopefully, add more substrate for a number of rare insects and fungi.

However, the effectiveness of the snagging has been unclear, until now. A group of Swedish researchers has studied snags in two clear felled areas. They found five different red-listed species in one area, and 20 in the other. The difference is explained by the occurrence of red-listed species in the adjacent forest. All red-listed species found were in the lowest threat category.

Probably new species will appear as the wood in the high stumps decays.

Limited risk for insect pests

It has been suggested that insect pests, such as bark beetles, could use the snags for breeding. However, the researchers found no breeding of bark beetle in snags cut in the autumn, and only limited breeding in stumps cut in winter or summer.

Source: Skog & Forskning 4/99

Conference in Norway

Forest – environment, industry and society

In March 2000, the Norwegian Research Council organised a conference in Oslo to summarise a five-year research programme, covering a broad spectrum of topics – from basic forest production to "how to engage more women in forestry".

The total governmental funding for the programme amounted to some Nkr129 million, corresponding to approx. 10% of the total forest research budget in Norway. 63 projects were funded, plus a number of grants to doctoral students.

In an overview, Erling Bergsaker, chairman of the programme board, said he was satisfied with the researchers' efforts in almost all respects. Nevertheless, he noted three areas in which the programme has not been very successful, and future research was desirable (see below).

The conference was also the starting point for a new 5-year research programme, named "Forest – resources and added value".

Areas where future research is desirable

- Forest yield in mixed uneven-aged forests
- Possibilities and profitability of more specialised forest products with high potential value – as an alternative to traditional raw-material production.
- Models and strategies for investment in primary production when the future demand for forest products is uncertain.

In the conference report, more than 63 projects were summarized.

Healthy forests in Norway

"The Norwegian forests are healthy. We did not get any "Waldsterben" (forest death). The climate is the dominant factor for the trees' vitality ". These conclusions are given by Dan Aamlid, researcher at the Norwegian Forest Research Institute, in an article in the newspaper Skoven?.

15 years of monitoring

Dan Aamlid summarises 15 years of extensive monitoring of Norwegian forests. The first programme was established in 1984, in response to European researchers' fear of large-scale forest decline due to air pollution. In the following years, a tighter network of monitoring plots was established in Norway.

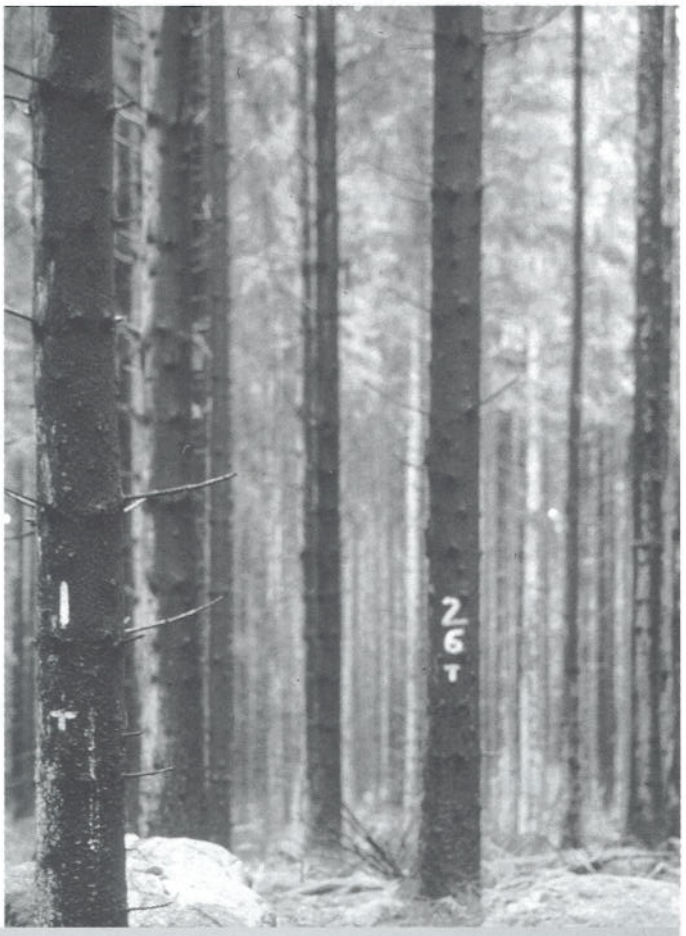
Close to the trees' limit

Over this 15-year-period, there was a tendency towards decline, measured as canopy density and needle colour, says Dan Aamlid. We are, however, certain that this has explanations other than air pollution. The coniferous forests in Norway are close to their geographical limits set by the tundra in the north and east, and by hardwood forests in the south. Small differences in weather from one year to another affect the trees' vitality. As an example, there was as a slight improvement in their vitality following the rainy summer in 1998.

New threat: Global change

Feared changes in the climate associated with global warming add further uncertainties for the health of Norwegian forests. Observing these phenomena is a new and important task for the monitoring programme, says Dan Aamlid.

Source: Norsk Skogbruk 1/2000



Above: Healthy Norway spruce.
Below: The trees are often growing close to their limits in Norway

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- relevant to the Journal
- interesting for the readers.

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