

The scientific editor:

Advancing the frontiers



Mats Hannerz

The scientific paper is the main instrument the researcher has for presenting his/her novel results: findings that may be directly applied or used by other researchers to advance the frontiers.

Some results may represent great leaps in knowledge, others may give important validation of earlier findings. Fine-tuning of published methods and the extension of results from local to

regional or global scales also provide important contributions to the development of the forest sector. All these levels of research

will find a place in Scandinavian Journal of Forest Research, with

the common criteria that the research must be of high scientific quality and international interest. This issue of the Journal presents research results that should benefit a wide range of forestry activities. Let me give you an introduction.

● **Direct seeding.** The success of direct seeding as a regeneration method for Scots pine in Scandinavia is highly variable and largely dependent on site and weather conditions. *Hans Winsa* and *Kenneth Sahlén* show that regeneration can be improved and made less variable by using invigorated seed and microsite preparation. But don't sow after mid July – seedling emergence declines after that.

● **Inbreeding depression.** If a tree population is marginal and isolated, the trees are more likely to suffer from inbreeding. The Journal is very happy to host *Frank Sorensen's* study on inbreeding depression in lodgepole pine, a tree that is normally highly out-crossed. He compared self- and cross-pollinated seedlings from a marginal, inbred population with those of ordinary populations. Self-crossing had very negative effects on the seedling characters, but the effects of self-crossing were weaker in the inbred population than in the ordinary population. The results support the

idea that deleterious alleles are removed as a result of inbreeding, which balances other negative genetic consequences of inbreeding. One referee concluded that the paper gives “among the best results I have seen on the effect of purging of deleterious alleles in natural populations”.

● **How to handle maple seeds.** A forest tree seed must have its dormancy broken before it is able to germinate. This is a practical reality for all nurseries, which must recognise that different seeds differ in their requirements with respect to temperature and moisture for dormancy release and subsequent germination. *Martin Jensen* helps us understand how to handle seeds of Norway maple, sorting out the complex interactions between temperature, chilling, dormancy and germination in order to define optimal conditions for germination.

● **Pine weevil feeding.** Pine weevil is enemy number one for planted conifer seedlings in Scandinavia. It is now well established that these insects

feed less on seedlings planted under shelter trees than on seedlings on clear-cuts. It has been suggested that the reduction in feeding is caused by an excess of other available food, especially bark, on the branches of the shelter trees. *Örlander, Nordlander* and *Wallertz* conducted two experiments to study whether the availability of other food sources also affects weevil feeding on planted seedlings on clear-cuts. They found that when fresh pine branches were placed on clear-cuts feeding on seedlings was significantly reduced, but the branches were used as food for only a short period after being put out.

● **Hydraulic properties of the mor layer.** The mor layer of a boreal forest soil holds most of the fine-root biomass, and decomposition and soil respiration is mainly restricted to this layer. Thus, the water supply in the mor strongly affects decomposition and nutrient cycling kinetics in the forest. Most earlier studies on water characteristics of the forest floor have been performed outside the boreal

forest zone. But now, *Ari Laurén* and *Hannu Mannerkoski* present data on hydraulic properties in mor layers in different stands, geographical locations and types of site in boreal Finland. Their data will significantly improve our understanding of the properties of the mor and help explain processes dependent on the water.

● **Translation of variables.** A practical problem in forestry planning was tackled by *Tron Eid*. Large-scale forestry planning methods in Norway rely heavily on two stand variables: basal area mean diameter and the number of stems. However, stand data from most operational forest inventories (relascope, photo or visual inventories) do not include these variables. Instead, they usually give figures for basal area per hectare or mean height. Eid was able to develop multiplicative models where the desired variables could be estimated from the available variables. The models were not accurate enough to be used at stand level, but they were effective as tools for planning at an aggregate level.

● **Modelling mortality.** Another planning and inventory problem was addressed by *Jonas Fridman* and *Göran Ståhl*. Tree mortality is an important issue in forest planning systems. The currently used models for mortality are not satisfactory, since they rely on old data and do not consider how mortality is distributed among the trees. The authors used data from the Swedish National Forest Inventory to develop new models for predicting mortality, which will be used to improve long-term forest planning in Sweden.

● **Storing spring-lifted seedlings.** Storage of seedlings has long attracted the interest of researchers. The results are usually directly applicable to real situations, and storage is related to interesting aspects of physiology and their interactions with the environment. In this issue *Yingfang Wang* and *Janusz Zwiazek* assess whether spring lifted bare-root seedlings can be stored to prolong the planting season. Most research on bare-root seedling storage has been done on autumn-lifted seedlings. The authors found that white spruce seedlings could be lifted from the soil in

early May, stored frozen for seven weeks, and still maintain satisfactory physiological status for planting.

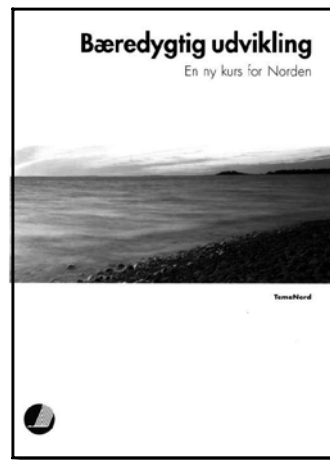
● **Carelia, an experimental plot.** The broad-scale effects of modern forestry are difficult to test experimentally. But, there is one large “experiment” in the real world which can be used to address such questions – located along the Russian border through Carelia. The forest in Carelia was under the same management for more than a century until the area was split between two countries during World War II. The Finnish forests have been intensively managed since then, while the Russian part has been less heavily utilised. *Jantunen, Saarinen* and *Marttila* compared forest stands on both sides of the border with respect to field layer vegetation. And they found significant differences in the forests, which they attributed to the difference in management intensity. The forests are less dense and more fragmented in Finland, while there are more forest fires and grazing in Russia. Hence, grassland species are more abundant in Finnish forests, and dwarf shrubs more abundant in Russia.

Strategy for sustainable development

The Nordic Council of Ministers has adopted a strategy for sustainable development. The Sub-title of their report is “**A new course for the Nordic countries**”. In the chapter entitled “Forestry”, seven goals are given high priority for the period 2001–2004, namely to

1. Influence European and international forest co-operation
2. Co-ordinate forest research in the Nordic countries

3. Promote the use of environmentally friendly products from the forests – thereby reducing the use of concrete, aluminium, plastic and other non-renewable materials.
4. Develop environmentally-friendly forest management systems
5. Improve the forest’s social provisions
6. Follow-up the Baltic 21-programme
7. Enhance the use of bio-fuels



Obituary

The SNS regrets to announce that chamberlain Vilhelm Bruun de Neergaard, Denmark, died on August 14th 2001 at the age of 66.

Vilhelm Bruun de Neergaard was one of the most prominent personalities in Danish forestry over the last 20–25 years. During the course of his life he held numerous leading positions with various forestry organizations in Denmark.

Throughout the period 1979–1992, he was chairman of the Danish Forest Association. In 1991, he was elected chairman of the newly established Danish Forest and Landscape Research Institute, a position he held until his death. He was also an active participant in various Nordic and European organizations.

At the family estate, Skjoldenæs-holm, Vilhelm Bruun de Neergaard and his family created a well-known hotel

and conference centre, hosting amongst other events, the meeting of the IUFRO Executive Board in 1999.

As a long-time member of the executive committee of the SNS and, notably, as the chairman of the organization in 1994–1997, Vilhelm Bruun de Neergaard made an invaluable contribution to Nordic co-operation. The SNS would like to express its sincere appreciation and gratitude for his work and commitment. He will be remembered for his good sense, his generosity and great dedication to forestry issues and Nordic co-operation.



Vilhelm Bruun de Neergaard was a very warm, humorous person, and his inimitable personality will be greatly missed by his colleagues and friends in the SNS, as well as in all the other organizations and enterprises in which he participated.

The SNS Executive Committee

Copenhagen Declaration on Sustainable Rural Development

The Ministers responsible for agriculture and forestry in Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway and Sweden have given their support for enhanced co-operation in the fields of forestry and agriculture.

The increase in political co-operation should be focused on building institutional and administrative capacity at all levels, emphasising:

- integration of environmental concerns in these sectors
- strengthening gender awareness
- involvement of the civil society and NGO's.

Within forestry, emphasis is to be placed on the following goals:

- Development and implementation of economic, social, cultural and ecologically sustainable forest management

- Facilitation of co-operation and networking of forest stakeholders aimed at exchange of information on ways and means of promoting extension services
- The contribution to employment and income opportunities in rural areas provided by small- and medium-sized enterprises in forestry
- Balanced use of forests in terms of production, recreation, biodiversity, cultural heritage and related aspects.

Contact: Ylva Tilander, Nordic Council of Ministers

Mapping Nordic Wood Product Research Activities

The board of SNS, the Nordic Forest Research Committee, has appointed Per T. Brenøe of Denmark to investigate Nordic wood products research. He is to map relevant projects running at institutes and universities and compile data on factors such as the number of researchers, economic turnover, finance etc.

He will also analyse the competence of each research body—and let them identify the issues they regard as important for the near future.

The investigation will cover wood science, architecture, design and market-oriented research.

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Soil preparation with steam

Soil preparation with hot steam is an interesting alternative to conventional scarification. Steam is especially effective on sites with grass. This is a finding from a Swedish trial.

The survival and growth of the planted seedlings were better on steam-treated sites than on mechanically-treated sites where the humus layer was removed.

The trial was done using a diesel-powered steam generator, the water was heated to 120°C and propelled onto 60 x 60 cm spots for a period varying from 15 seconds to 2 minutes. To kill the vegetation and roots, the temperature must reach 55–60°C.

The equipment used in the trials was not suitable for large-scale treatment, due to its high water and fuel con-

sumption. But weed-control with steam is now an established method in parks and gardens and effective new tools are available on the market. They could easily be adapted for use with forestry machines.

In the trials, the biological processes in the soil were not negatively affected by the steam treatment. A few weeks after treatment, both biological activity and mycorrhiza abundance had returned to their pre-treatment levels.

Source: Gisela Norberg, dissertation, SLU



Denmark

Motorway-bridge of wood

In Denmark, the first wooden bridge over a motorway is under construction. 600 m³ of mostly Danish spruce is being converted into a laminated, 54-metre bridge over the new highway.

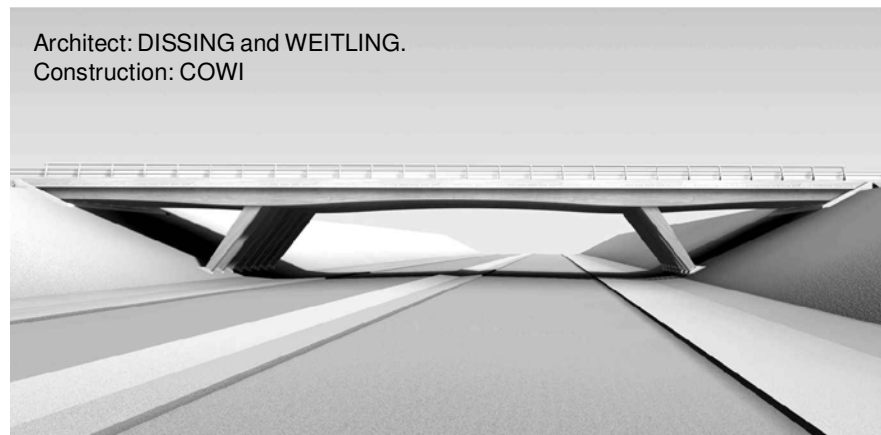
The bridge has two lanes for cars, one for pedestrians and one for the fauna! It can carry vehicles weighing up to 100 tonnes.

The cost of the wooden bridge will be approx. Dkr 7.6 million. That is

some 2 million more than a traditional concrete bridge. The additional cost is partly due to lack of knowledge concerning this kind of timber construction. In the future, it is estimated that the additional cost for a wooden bridge will be Dkr 0.5 million.

It is predicted that a wooden bridge will last as long as one made of concrete.

Source: SKOVEN 8 2001.



Architect: DISSING and WEITLING.
Construction: COWI

Sweden 2000

A year of storms and floods

Despite widespread windthrow and flooding in southern Sweden, average logging costs on the forest enterprises' land fell by Skr5/m³ (solid i.b.) in the year 2000 compared with the previous year. This offers little comfort to the landowners whose land was devastated by storms and flooding, but it does underline the ability of logging systems to operate well in difficult conditions. Costs in the north of the country were largely unchanged.

Thinning costs had been on a downward trend for many years but, in 1999, the trend bottomed out and, in 2000, exhibited a slight rise.

These are some of the findings that emerged from the annual questionnaire on forestry costs and revenue in Sweden sent out by SkogForsk and the National Board of Forestry. The figures provided by the enterprises were taken from their annual accounts.

Source: Resultat nr 7 2001. SkogForsk

Healthy forests in Denmark

More than 90% of the spruces (*Picea abies*) in Denmark were classified as “not-damaged” in the year 2000. The figures for pine (*Pinus sylvestris*) are even better: 93% “not-damaged” trees.

These are some findings from the Danish monitoring programme, in which 1,248 trees are being studied at 52 spots distributed throughout the country.

The health of the oak-trees was not that good. Only 80% of the trees were healthy. However, their status has improved substantially since 1999, when the proportion of healthy oak

trees was as low as 60%, partly due to insect attacks.

A tree is regarded as “not-damaged” when needle- and leaf- losses account for less than 25% of the maximal foliage of the site.

When considering the long-term trend for spruce, the proportion of “not-damaged” trees has varied. From 1989 to 1994 the situation worsened year by year. But from 1994 to the present day, the spruce have been getting more and more healthy again. No simple explanation has been given, but the improvement is believed to be due to climatic factors.

Source: SKOVEN 8 2001



Database on Forest Disturbance

EFI, The European Forest Institute, together with Alterra in The Netherlands, has launched a Database on Forest Disturbance in Europe.

The aim for the database is to provide historic information about disturbance in the forests of Europe.

In this context, disturbance is defined quite widely, as “the occurrence of an event that causes unforeseen loss of living forest biomass or events that decrease the value or potential value of the wood or forest stand”.

The majority of disturbances are caused by natural agents, but effects caused by humans, like sanitation fellings due to air pollution, are also taken into account. In addition, information is included about measures (e.g. various chemical and biological treatments) taken to reduce the impact of disturbances, especially those caused by insect pests.

The information in the database is collected by literature surveys,

covering both scientific papers and “grey” literature.

Although the information in the database is already quite extensive—comprising about 27 000 records from 400 literature references—it still has gaps.

Each reference to a disturbance event is put in a single record, containing information on the year of its occurrence, the exact date, country, region, district, type of disturbance, and tree species affected, together with the volume of timber, the area, number and percentage of trees damaged, other comments and the relevant reference.

Users can search the database by country, year or period, or type of disturbance (abiotic, biotic, anthropogenic). Functions allowing searches at a more detailed level will be added soon.

The database is freely accessible.

Source: EFI website

The screenshot shows a web browser window displaying the website for the European Forest Institute (EFI). The page title is "EUROPEAN FOREST INSTITUTE" and the main heading is "Database on Forest Disturbances in Europe (DFDE)". There are several navigation links and sections visible, including "Introduction", "For who is this database", "What information does the database contain", "Clear access of information on forest disturbances", "How to use the database", "Acknowledgement", "Availability of the data", "How to refer to the data/copyrights", "Contact EFI", "Participants of the DFDE Database", "Disclaimer", and "Search the database". There is also a logo for ALTERRA. The page content includes an introduction paragraph and a search bar.

<http://www.efi.fi/projects/dfde>

Norway

Salt preserves wooden bridges in Bergen

The wooden bridges in the Bergen harbour area are still in good shape, despite standing for 300 years in an extremely humid environment.

Researchers have recently found that this is an effect of the abundant use of salt when handling fish.

The town of Bergen was destroyed in a fierce fire in 1702. The harbour was rapidly rebuilt.

During the ongoing restoration of the harbour area, surprisingly fresh wood has been found, even in places where rot should normally have destroyed it rapidly, e.g. in the boundary zone between air and soil.

The reason is the high concentration of salt in the wood: two to five times the concentration in sea water. The hypothesis is that salt stored and

handled in the lower floors has poured or seeped through the timber constructions.

These findings may give a valuable contribution to ongoing research seeking to identify environmentally friendly alternative methods to preserve wood.

Source: NISK, Norway



Denmark

Public access or not? Intense debate

In contrast to the other Nordic countries, there is no automatic right of public access to privately owned forest-land in Denmark. But there is growing conflict. Politicians and user-organisations want new rules guaranteeing free access.

However, the Danish Forest-owners Association

have adopted a different stance. They want to keep the present rules, giving the land-owner the right to deny people access to their forests.

“We are convinced that the Danish people get the most from their Nature trips through voluntary agreements with the forest owners. It gives us a chance

to co-ordinate with other activities and the possibility to protect valuable areas”, said Mr Lars Wilhjelm, chair of the Association in its latest General Assembly.

Source: SKOVEN 8 2001

Norway

R&D fund for greenery

The Norwegian producers of “pyntegrönt” (evergreen branches for ornamental use) have established a common R&D-fund. Each company will contribute 0.2% of its turnover. A country-wide organisation of trials and regional advisors will be operative next year.

Contact News & Views

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- short
- relevant to the Journal
- interesting for the readers.

Examples: comments on papers published in the Journal, views on ongoing research, trends in research policy, opinion about forestry practice etc.