News and Views

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## From the scientific editor:

# Solutions

**Research is often a matter of searching for solutions to defined problems. This issue presents examples of successful attempts to solve problems with pathogens in nurseries, low survival of pine seedlings and poor growth of regeneration after direct seeding. But another role of research is to identify ineffective approaches. Its value is demonstrated by several articles in this issue, which demonstrate shortcomings in current methods to reduce *Cronartium* rust in pines, to control wood discoloration in birch and to preserve red-listed species. For a short summary of the contents of this issue see below.**



**Thuy Olsson and Tore Ericsson** used modern statistical methods to evaluate genetic relationships in Scots pine trees in harsh climates. An important conclusion drawn from their *multitrait BLUP* computations was that selection causes a bias in the estimates. If mortality is not considered when calculating heritability for growth, it will be overestimated. They also found a positive correlation between survival and growth – suggesting that selecting the best growing families will also help to reduce mortality.

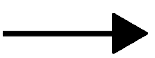
Such a simple treatment as washing the plastic containers with hot water for 30 seconds helps to reduce pathogens and root dieback in the nursery. This was one of the conclusions made by **Ketil Kohmann and Isabella Børja** in a study undertaken to solve problems with stunted growth in containerised seedling production.

The effects of seed weight and seed type on the growth of Scots pine after direct seeding was investigated by **Ulfstand Wennström and co-workers**. They found a substantial, positive effect of seed weight on height growth, which was stronger in harsh than in optimal conditions. Besides the seed weight effect, using seed from seed orchards instead of natural stands enhanced growth still further.

Controlling the natural establishment of birch was the focus of a study in southern Sweden by **Matts Karlsson and co-workers**. If birch is desired, the site should be scarified and the slash removed. Otherwise, these treatments should be avoided.

**Lars Helge Frivold and Jon Frank** used south-eastern Norway as their arena to study the effect of birch on wood production in the phase following establishment. The key question addressed was whether mixtures of birch and conifers produce more wood than pure coniferous stands. And they sometimes do – in young mixtures of Norway spruce and birch, but not in older mixtures, or mixtures of pine and birch.

There is a gall midge, *Thecodiplosis brachyntera*, whose larvae feed on the needles of pines. The insect is common in continental Europe, but outbreaks in Scandinavia are rare. Therefore, when outbreaks occurred several years in a row, **Carolyn Glynn and Åke Lindelöw** used the opportunity to learn more about the species. Two of their findings were that feeding was evenly distributed in the crown of Scots pine trees and that height growth was reduced in heavily attacked trees.



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The rust species *Cronartium flaccidum* is a severe pathogen, which causes serious losses in the yield and value of mature Scots pine trees. **Juha Kaitera** used a heavily infected stand to establish a thinning experiment. He found that removing diseased or sporulating trees was not an efficient way to increase the chances for the remaining trees to stay healthy.

"Woodland key habitats" is a term used in Scandinavia to describe wooded areas with high conservation value, where you expect to find red-listed species. However, when **Anne Sverdrup-Thygeson** compared key habitats and normal production forest, she found no evidence that they had helped preserve saproxylic beetles. The beetles were just as common in the production forest as in the key habitats.

The natural light colour is highly important for the attractiveness of silver birch wood products. Thus, wood discoloration is a defect that diminishes the value of the timber. **Kirsi Mononen and colleagues** used colorimetric methods to evaluate if discoloration was affected by felling season, log storage or kiln drying. The colour of the fresh wood varied depending on felling season. However, after log storage and drying, the wood became generally darker, regardless of the colour at the time of felling.



# Swedish forest policy revised

**As a result of low investment in silviculture and consequent regeneration failures, large areas are now in urgent need of cleaning or restoration. This was one of the conclusions emphasised in a review of current forest policy in Sweden. Another was that forest owners usually respond positively towards voluntarily setting aside land for conservation purposes. The evaluation, produced by the National Board of Forestry, was recently presented to the Swedish government.**

The present forest policy was adopted by the Swedish parliament in 1993, superseding the previous policy, set in 1979. The former legislation focused on wood supply, and included many provisions to increase forest wood production. The present policy gives production and the environment equal weight, reflecting the movement towards greater environmental sensitivity in today's forestry. Another important shift in the policy has been away from law enforcement and subsidies towards voluntary commitments in the forestry sector.

*There is an urgent need for cleaning on 1.2 million hectares.* Photo: M Hannerz

## Some important points stressed in the review:

- The economic weakness of the forest sector during the 1990s has put pressure on companies to rationalise. Fewer people than ever work in forestry today: only 20,000, not counting self-employed forest owners. Contractors are also taking a larger portion of the market – at present more logging work is done by contractors than by employees in the forest companies.

- Reforestation and cleaning has been lagging behind requirements. Fewer reforestation projects meet the minimum standards. There is an urgent need for cleaning on 1.2 million hectares of young forests.

- The attitude of both forest owners and employees towards conservation has become more positive. Specific campaigns and advisory work have been successful. Today, 85% of forest owners agree to voluntarily set aside forest lands to protect threatened species.

- Voluntarily set aside reserves comprise 3.5% of the forest area, almost as much as the forest protected in national parks and reserves.

# Forest plantations increase fast – but world's forests still decline

*Timber from a natural tropical forest.*
*Photo: M. Hannerz*

**Forests of the world cover 3.9 billion ha, or 0.6 ha per capita. But this figure is falling. Taking deforestation, afforestation and natural expansion of forests into account, the estimated forest loss in the 1990s as a whole was 94 million hectares, an area larger than Venezuela! These figures are presented in a new FAO report – Global Forest Resources Assessment 2000.**

The forest decline was mainly restricted to the tropics, while forests were expanding in other areas. In total, there was also a trend away from natural forests towards plantations. In fact the world lost 4.2% of its natural forests from 1990 to 2000, while it gained 1.8% through reforestation, afforestation and natural expansion of forests.

Forest plantations increased significantly in the last decade. They covered 187 million ha in 2000, of which Asia accounted for 62%.

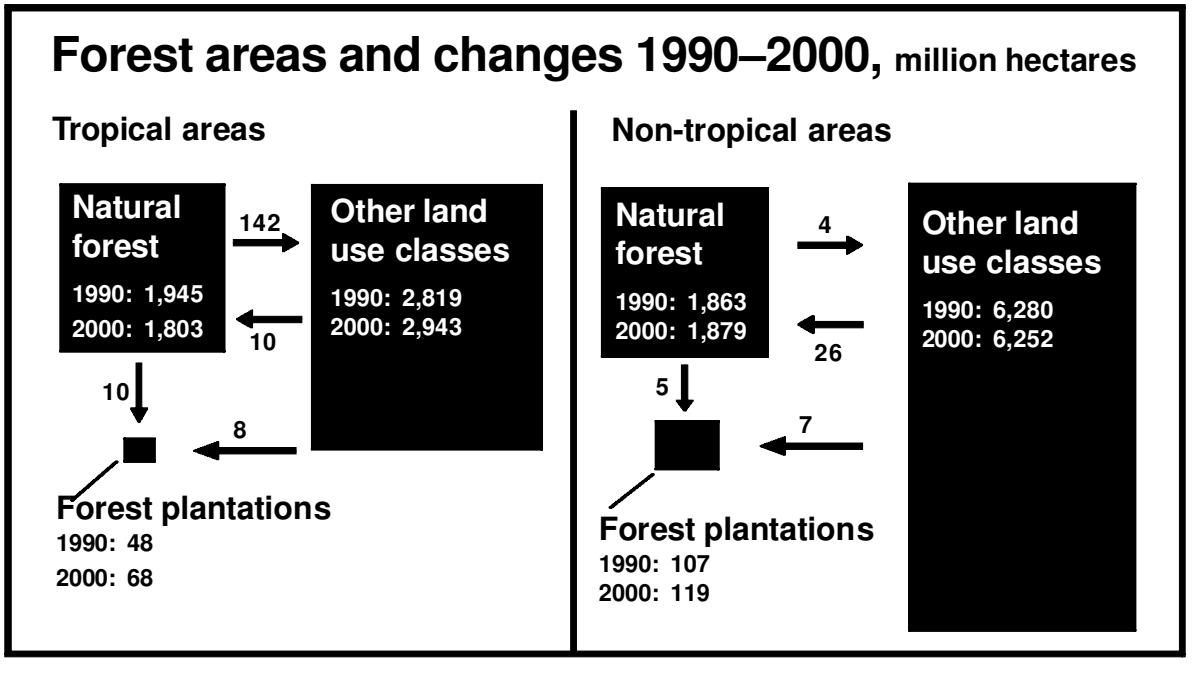
Eucalypts and Acacia were the most common short-rotation species, pine and other conifers the main medium-rotation tree species. The importance of plantations in terms of wood supply is also increasing. Globally, plantations account for 5% of forest cover, but 35% of the round wood supply. This share is predicted to increase to 44% by 2020.

*Source: Global Forest Resources Assessment 2000. FAO Forestry Paper 140, 2001*

**Facts**

The FAO Global Forest Resources Assessment 2000 continues a tradition of reporting the state of the world's forests that the FAO has maintained for over 50 years. It is also the most comprehensive report so far. It presents data on forest areas, volumes, plantations, biological diversity, wood supply and much more, from both global and regional perspectives. Even more detailed data, country by country, can be obtained at **www.fao.org/forestry**.

## Forest areas and changes 1990–2000, million hectares



# Nordic countries have the cleanest environments

**Finland, Norway and Sweden rank at the top of the worldwide ESI index ratings. According to the study, Finland stands at the top of the podium because of its success in minimizing air and water pollution, its high institutional capacity to handle environmental problems, and comparatively low levels of greenhouse gas emissions.**

*Clean Nordic water.* *Photo: Areca*

The Environmental Sustainability Index has been developed to rank the environmental status of 142 countries with respect to a wide range of variables such as urban air quality, water purity, and the strength of environmental regulation. The ESI also provides a basis for addressing a number of pressing policy issues, such as: does good environmental performance come at a price in terms of economic success? The ESI suggests not. Finland and Belgium, for example, have similar GDP per capita figures, but are ranked widely apart by the ESI. Finland has a GDP per capita of $22,008 and a score of 73.7, while Belgium has a GDP of $24,533 per capita and scores just 38.6.

"The ESI shows that a nation's economic status does not necessarily predict its environmental success," says Marc Levy of Columbia University's Center for International Earth Science Information Network (CIESIN), a unit of the Columbia Earth Institute.

### U.S. performace uneven

The United States is 51st on the list, and its performance is uneven. The U.S. lags in controlling greenhouse gas emissions that contribute to climate change and under-performs compared to its peers in reducing waste. Yet the United States stands at the forefront of the world in controlling water pollution and promoting robust environmental policy debates.

### Bottom positions

The bottom positions are held by United Arab Emirates, Kuwait, North Korea and Iraq. The list is produced by the Center for International Earth Science Information Network (CIESIN) at Columbia University, under the auspices of the World Economic Forum.

*Source: www.ciesin.columbia.edu/indicators/ESI/rank.html*



## Peace in the Swedish forest?

# Certification systems link up

In Europe two parallel, and quite distinct, systems for the environmental certification of forest products are applied through the FSC and PEFC programs. FSC, the Forest Stewardship Council, is the world-wide system, under which 24 million hectares is currently certified. The other system, Pan-European Forest Certification (PEFC), was launched in 1999 to establish a framework for several national certification systems and to better meet the demands of private European land owners. The PEFC has certified 41 million hectares in Europe, more than half of which are in Finland. FSC certifies 16 million hectares in Europe, of which 10 million hectares are in Sweden. Conflict between the two systems has obstructed the breakthrough of certified forestry products.

Now, strong efforts are being made to link the two systems. Proponents of the Swedish FSC and PEFC programs have agreed on a framework called "Skogsduvan" (wood pigeon), which will smooth out differences in the rules of the systems, with the aim of finding a common system for European forestry. The framework will be sent to the European PEFC for approval.

*More information on: www.pefc.se and www.fse.se and www.wwf.se*

# Forester new head of Danish KVL

The new head of the Royal Veterinary and Agricultural University in Denmark (KVL) has a forestry background. In April Per Holten-Andersen succeeds Bent Schmidt-Nielsen, who has been the head of KVL for the last 15 years. Dr. Holten-Andersen is presently Head of the Department of Economics and Natural Resources at KVL and has taught, as Associate Professor, mensuration, forest economics and forest management planning.

*Source: www.kvl.dk*

# Nordic and Baltic institutions draw closer

Nordic-Baltic cooperation in forest research was the theme of a workshop held in Malmö, Sweden, in November last year. The meeting was financed by the Nordic Council of Ministers. Additional support was provided by SNS, which gives high priority to cooperation between Nordic countries and adjacent areas. The Baltic countries and north-west Russia will be included in the SNS network in the near future.

The workshop focused on identifying topics for potential cooperative projects between Nordic and Baltic institutions. Groups were formed with the aim of setting up joint projects on:

- Interactions between national policies and forest management
- Perspectives of family-run forestry and rural development
- Natural disturbances as bases for ecosystem management
- Birch silviculture

*Contact: Vilis Brukas (vb@kvl.dk)*

# Joint project on sustainable forest management



At present there is one Nordic-Baltic forest research project funded by the EU. The title of the project, which spells out its goals, is **Wood-En-Man; Wood for energy – a contribution to the development of sustainable forest management**. It focuses on issues related to the use of sustainable wood-based biomass resources for energy production.

Central topics are:
**(1)** ecosystem nutrient vulnerability (nutrient balances and the tendency of soils to release nutrients),

**(2)** environmental effects of wood-ash recycling on soil, seepage water, mycorrhiza and trees

**(3)** insect diversity, including insect pests in connection with storing marginal wood resources in the forest.

The sociological and economic impact of using these resources will also be considered, such as the management and policy adjustments required, the financial implications of identified environmental effects, contingency plans for commercial and policy failures, the competitiveness of wood-based biomass compared to other energy sources, and the possibility of adjusting competitiveness by fiscal measures. Major goals of the project will be to develop operational level management guidelines (in book form) for the sustainable utilisation of wood-based biomass from conventional forests for energy, and subsequently to provide both national and regional (EU and Pan-European) policy recommendations.

## Danish coordination

Coordinated by the Danish Forest and Landscape Research Institute (FSL), the project also involves partners from Sweden (SLU), Finland (METLA), Norway (Skogforsk), Lithuania (LFRI), Latvia (SILAVA) and Estonia (FRI).

The project started officially on 1 August 2001 and will run for four years. However, cooperative efforts to prepare the project have been going on since 1999.

The project is co-ordinated by Karsten Raulund Rasmussen, FSL.

The Baltic institutions will be involved in several specific parts of the project:

- Estonian participants will concentrate on the ecological consequences of wood ash recycling.
- Latvia is involved in studying the effects of wood ash recycling on seepage water, changes in the dynamics of fine roots and mycorrhiza following ash applications, biodiversity, and risks posed by insect pests.
- Lithuania, on the other hand, will supply the project with an economic-environmental impact analysis of extensive wood use for energy production in countries with transition economies. Lithuanian scientists will also establish field experiments to study nutrient cycling, mycorrhizal-bacterial activity and reaction of trees to ash fertilization.

*Further information is available at www.flec.kvl.dk/wood-en-man/*

*Photo: Sydved energi*

# Four years of service to a changing SNS

*Boel Åström, right, hands over to the new SNS secretary, Olav Gislerud.*
*Photo: Mats Hannerz*

The secretary is the only employee on the payroll of SNS. Although this is a half-time position, her years with SNS have been important and rewarding for Dr Boel Åström, who is handing over to Olav Gislerud at the Research Council of Norway.

**"I will miss all my friends in the networks built around SNS", says Boel.**

She will now go back to her full-time position as a secretary at the Swedish Research Council for the Environment, Agricultural Sciences and Spatial Planning (Formas).

### Seed money

"SNS has taken strategic decisions during my period that will change its role", she says when asked what developments have been most important. "SNS used to mainly fund joint research projects. Now, more of the funding is directed towards building networks and helping to prepare proposals for submission to the EU. The funding of research projects has more of a 'seed money' nature, to initiate research that may find full funding from other sources, or to co-ordinate research initiatives funded by national institutions. The possibility for the SNS board to take their own initiatives has also increased", she continues. –"We have money set aside that can be directed towards specific investigations, task forces, information activities etc., in cases where SNS decides that such ventures are required."

### Targeting Baltic countries and western Russia

Another development is the closer links that have been forged with the Baltic countries and north-western Russia. Cooperation with these adjacent areas is now given high priority. For example, a meeting was held last year to discuss common projects, and SNS initiated the EU-project Wood-En-Man (see article p. 101). During 2002, SNS will formulate a policy, based on suggestions put forward by a joint Nordic-Baltic working party appointed by the SNS.

### The Journal – an important contribution to the global scientific community

It is natural for the editor to ask about the relationship of SNS to the Scandinavian Journal of Forest Research. "SNS was the founder of the journal," Boel Åström says. "When the first volume was launched, in 1986, the main purpose was to create a forum for Scandinavian forest researchers to communicate with the international research community. Until then, much of such research was reported solely in national publications, not readily available outside the authors' own country, and the journal probably filled an important gap. Since then, it has developed into one of the leading scientific journals in its field. SNS has recently initiated an evaluation of the journal, which will take place this year", she says.



## Contact News & Views

Write to the secretariat of SNS, The Nordic Forest Research Cooperation Committee:
att: Olav Gislerud
The Research Council of Norway
P.O. Box 2700 St. Hanshaugen
N-0131 Oslo, Norway
*og@forskningsradet.no*

News & Views is edited by Mats Hannerz *mats.hannerz@skogforsk.se*, and produced by Carl Henrik Palmér. *chp@areca.se*

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