Forestry in Finland

by Tuomas Heiramo and Marja Ruutu

Above, Koli National Park. Photo: The Finnish Forest Research Institute/Mr. Erkki Oksanen.

Introduction

Of all the nations in the world, Finland has been and remains the most dependent on its forests and forest industries. Finland's 20 million hectares of forest are the nation's major natural resource. Forests have made life possible in this northern country, providing a basis on which Finns have built their economy, welfare, industry and foreign trade. At the beginning of this century over 85 per cent of Finland's export income was derived from forest industry products. Even today, forest industry

continues to be the leader in the Finnish economy. The exportation of pulp and paper, paperboard and sawnwood, plywood and other wood based panels still brings in nearly 40 per cent of the nation's net export earnings.

Conditions for Silviculture

Finland is located within the boreal coniferous zone between the 60th and 70th parallels. Thus, the main limitation to forest growth in Finland is the climate. The length of the growing season varies from 120 to 170 days. The winters can be cold at times and the temperature differences between the northern and southern parts of the country are considerable.

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Commercial forest in Puumala, East Finland. Photo: The Finnish Forest Research Institute/Mr. Erkki Oksanen.

A total of 20.1 million hectares is considered as actual forest land, but when other wooded land is included it amounts to 26.3 million hectares. About two-thirds of Finland's land area is forested. Finland has about 4.1 hectares of forest per inhabitant. The four main tree species, Scots pine (*Pinus sylvestris*), Norway spruce (*Picea abies*) and two species of birch (*Betula pendula* and *B. pubescens*) are commercially valuable.

Forest Ownership

Nearly two-thirds of the Finnish forested area are owned by private individuals. Private forests play a central role in Finnish forestry. Most of them are situated in the southern and central parts of the country, where timber production is at its best. Indeed,

their share of the standing volume of timber and of felling volumes is considerably higher than their share of the total forest area. State-owned forests make up a quarter of the forest land area and are situated mainly on poorer soils in northern and eastern Finland. Some 8 per cent of the forests are owned by companies. Approximately 85 per cent of the domestic roundwood consumed by the country's forest industry comes from the private non-industrial forestry sector.

Private forest ownership is fragmented and small-scale. The number of woodlots of more than 1 hectare is about 440 000, about 300 000 of them being over 5 hectares in size, and the average is 33 hectares. Only 4 per cent of the woodlots are over 100 hectares.

Birch-spruce mixed forest in Punkaharju experimental area. Photo: The Finnish Forest Research Institute/Mr. Erkki Oksanen.

Private forest ownership has traditionally been linked very closely with agriculture. Almost without exception, forestry has represented a secondary livelihood for the farmers. Social changes, such as urbanization and the depopulation of rural areas, have had a powerful influence on private forest ownership, especially since World War II. In 1945 the farmers owned 92 per cent of private forests, but in 1990 only 42 per cent.

Forest Resources

Efficient, sustained-yield forestry has been practised in Finland for many decades. The nation's forest resources and their current condition are proof of good forest management.

Finnish forests are in excellent condition and their annual growth is clearly greater than the drain.

The methods applied in Finland in both forest regeneration and young stand management have been developed along the lines of natural development in the forest ecosystem. Natural regeneration is employed whenever possible. Although the use of artificial regeneration increased rapidly in the 1960s, as a consequence of extensive forest improvement programmes, only about 20 per cent, or 4 million hectares, of Finland's forest are plantation forests. The remaining 80 per cent are of natural origin. The current annual regeneration area amounts to about 1 per cent of the total forest area.

Häädetkeidas nature reserve. Photo: The Finnish Forest Research Institute/Mr. Erkki Oksanen.

Thinnings are carried out one to four times during the rotation. Tree species composition is directed at establishing mixed stands. Clear felled areas and operations in general are relatively small, and conform with the topography. All commercially tended tree species are indigenous to Finland.

To date, Finland's forest resources have been inventoried eight times at intervals of 8–10 years. The current growing stock is the largest ever recorded — 1880 million m^3 . The annual increment amounts to 80 million m^3 , while the annual cut is some 55 million m^3 , i.e. about two-thirds of the annual increment.

The increase in the growth of Finland's forest resources results from increasingly efficient forest management, the rehabilitation of poorly growing forests, wetland drainage, greater stocking of the forests and fertilization.

There are 9 million hectares of mire in Finland of which 4.6 million hectares have been drained in order to facilitate better forest growth. It has been estimated that the drainage of peatlands has contributed some 10 million cubic metres or 15 per cent to the national annual increment figure. Now very little new forest drainage is carried out.

Norway spruce forest in Pyhätunturi National Park, North Finland. Photo: The Finnish Forest Research Institute/Mr. Erkki Oksanen.

New Challenges

The pressures imposed on Finland's forests have undergone changes during the past few years. Finland's forests are now growing so well that demands for both industrial raw materials and the use of forests for other purposes can be met.

The great challenges facing forestry during this decade include maintaining the vitality of the forests and their biological diversity and of slowing down the greenhouse effect. Indeed, attending to the health and vitality of the forest ecosystem has become a prime concern.

Forest Research

By the mid 19th century, forest research and higher education had become important to ensure the productivity, growth and well-being of the forests. Today, there are several forest research institutions in Finland, both in the public and private sectors. The Finnish Forest Research Institute, METLA, under the Ministry of Agriculture and Forestry, is the central organization in the field. It was established in 1917 and has now around 700 employees, including 220 researchers holding academic degrees, 75 of them with doctoral degrees. METLA is mainly funded by the state budget, METLA's share this year being 156 million Finnish marks (USD 30 million); that is about 60 per cent of all the funding for forest research in Finland. Forest research is also carried out at several universities, especially in the Universities of Helsinki and Joensuu.

Earlier, up until the end of the 1980s, forest research was almost exclusively aimed at increasing wood production, mechanizing harvesting and developing new regeneration techniques. Now, by the mid-1990's, when the ancient fear of running out of forest reserves has gradually turned into under-utilization of wood-resources, these earlier topics are still valid, but bear the condition "on nature's terms".

The development of virgin forests and the diversity of forest ecosystems, the state of the health of the forests and the possible consequences of a warming up of the climate are now the forefront topics of forest research, not to forget the multiple use of forests.

IUFRO XX World Congress

Finland lives on its forests and the Finns live in its forests. This proverb tells of a national tradition which the Finns still respect. It is therefore appropriate and timely that the 20th World Congress of the International Union of Forestry Research Organizations (IUFRO) will be held in Finland in 1995.

The Congress will take place in Tampere, 175 kilometres north of Helsinki. With a population of 180 000, Tampere is the third largest city in Finland and the largest inland city in Scandinavia.