

## Forest characteristics and forest types - Finland

Geographically Finland lies in an intermediate zone between maritime and continental climates, belonging for the most part to the boreal vegetation zone. Because Finland is over 1,100 km long on the north-south axis, conditions for forest growth vary considerably between the southern and northern parts of the country.

Forests are Finland's most significant renewable natural resource. Finland's forests are managed sustainably. The basic requirement of sustainable forest management is to safeguard the continuity and profitability of wood production while taking into account the biological diversity of forests as well as other forest products and services.

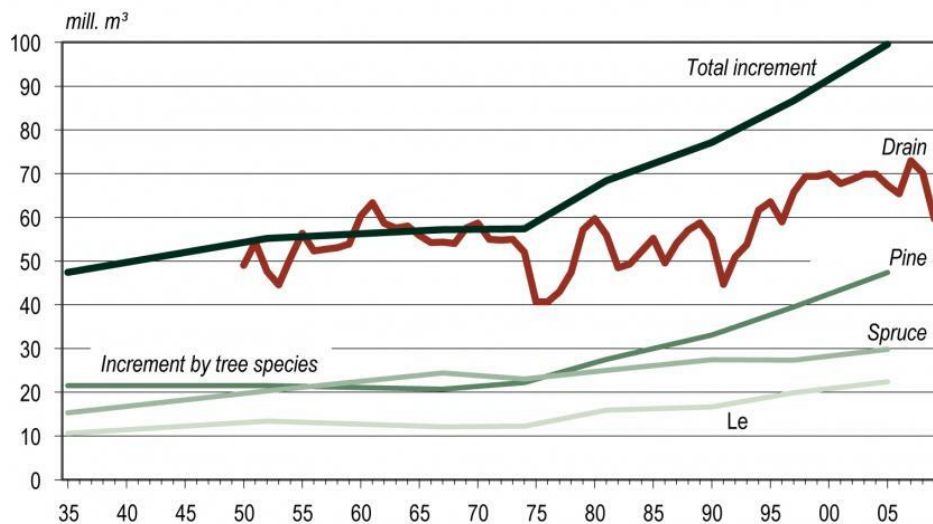
The forest cover in Finland is more extensive than in any other European country. Over 86 % of the land area, some 23 million hectares, is under forests. One hectare is the equivalent of a square, each side having a length of 100 meter. Of the total forestry land in Finland, 71 % is under private ownership (including the Finnish forest industry companies, municipal, parish, shared or have a joint ownership); the Finnish state owns 29 %.



*Forest cover in Europe, as percentage of land area (European Forest Institute EFI)*



*Finnish forest and water landscape (Metla/Erkki Oksanen)*



*Annual increment of growing stock and growing stock drain (cuttings). Increment of growing stock (1935–2009) and cuttings (1949–2009). (Finnish Forest Research Institute (Metla), National Forest Inventory and Forest Statistics Information Service)*

Towards the north, the climate gets increasingly colder and more humid. The annual growth period in southern Finland is about five months, and in the north it is three months. The growing stock volume in Finland amounts to 2 206 million cubic meter (m<sup>3</sup>). One cubic meter is the equivalent of a cube with edges one meter in length, width and height. The average annual increment of growing stock in Finland is about 5 m<sup>3</sup>/ha/year. The annual increment of the growing stock in Finland is 100 million cubic meter.

Half of the growing stock volume consists of Scots pine, 30 % Norway spruce, and 20 % broadleaves (mainly birch).

## **Typical and exceptional fauna and flora species in forests - Finland**

The number of plant and tree species in Finnish forests is small compared to the boreal zone in North America, or the temperate zone in Central Europe. This is because of the high European mountain ranges running east-west, which prevented the return of plants to the north after the last Ice Age about 10 000 years ago.

There are only four coniferous tree species native to Finland, and fewer than 30 deciduous trees and arborescent shrubs. The majority of forests in Finland are predominantly coniferous, with broadleaves often growing in mixed stands. Mixed forest stands and predominance of broadleaves are common in fresh mineral soil sites and upland forests with grass-herb vegetation. The most common species growing in mixed stands is downy birch.

Scots pine predominates on 66 % of forestland, spruce on 24 % and broadleaves on 9 %. Broadleaves, which are important to forest biodiversity and the soil and grow mostly in mixed stands, account for 20 % of the total volume of growing stock, which is clearly more than the total area of predominantly deciduous stands.



*Finnish birch forest (Metla/Erkki Oksanen)*



*Moose (Alces alces), (Metla/Erkki Oksanen)*

Several carnivores can be found in Finland's forest: the brown bear, the wolf, lynx and wolverine. According to the latest evaluations there are about 1000 brown bears and at least 150 wolves in Finland. Game and reindeer management in Finland is practiced within the limits permitted by the sustainable use of natural resources. The most common game animals are elk, hare, grouse and waterfowl. The authorities and local game management associations in Finland safeguard the conditions for game in Finland by directing the diversified use and management of the natural resources on which they are based.

## **Forms of nature protection such as national parks and Natura 2000 sites - Finland**

Conservation areas are areas where forests are allowed to develop naturally, or where woodcuttings are severely restricted. The establishment of statutory conservation areas in Finland has been based on conservation programmes for national parks, strict nature reserves, mires, waterfowl habitats, eskers, herb-rich forests, shorelines and old-growth.

In Finland, there are over 4.8 million hectares of protected forests and areas under restricted forestry use. This represents 13 % of Finland's total forest area. The majority of protected forests are in northern Finland. Owing to many protection programmes and decisions, the area of protected forests has increased three-fold in Finland over the past 30 years.

The first national parks and nature reserves in Finland were established in 1938. There are currently 35 national parks, 19 strict nature reserves and 12 wilderness reserves. The share of strictly protected forests in Finland is among the largest in Europe.

In 2002, the Finnish Government adopted the Forest Biodiversity Programme for Southern Finland (METSO) with the aim to improve the maintenance of habitats and structural features of forests vital to the survival of endangered species in private forests. New areas and networks of areas that support forest biodiversity are created, and the biodiversity of existing conservation areas is improved. The principles of new protection methods are voluntary participation by forest owners, preservation of ownership and full compensation of economic losses.

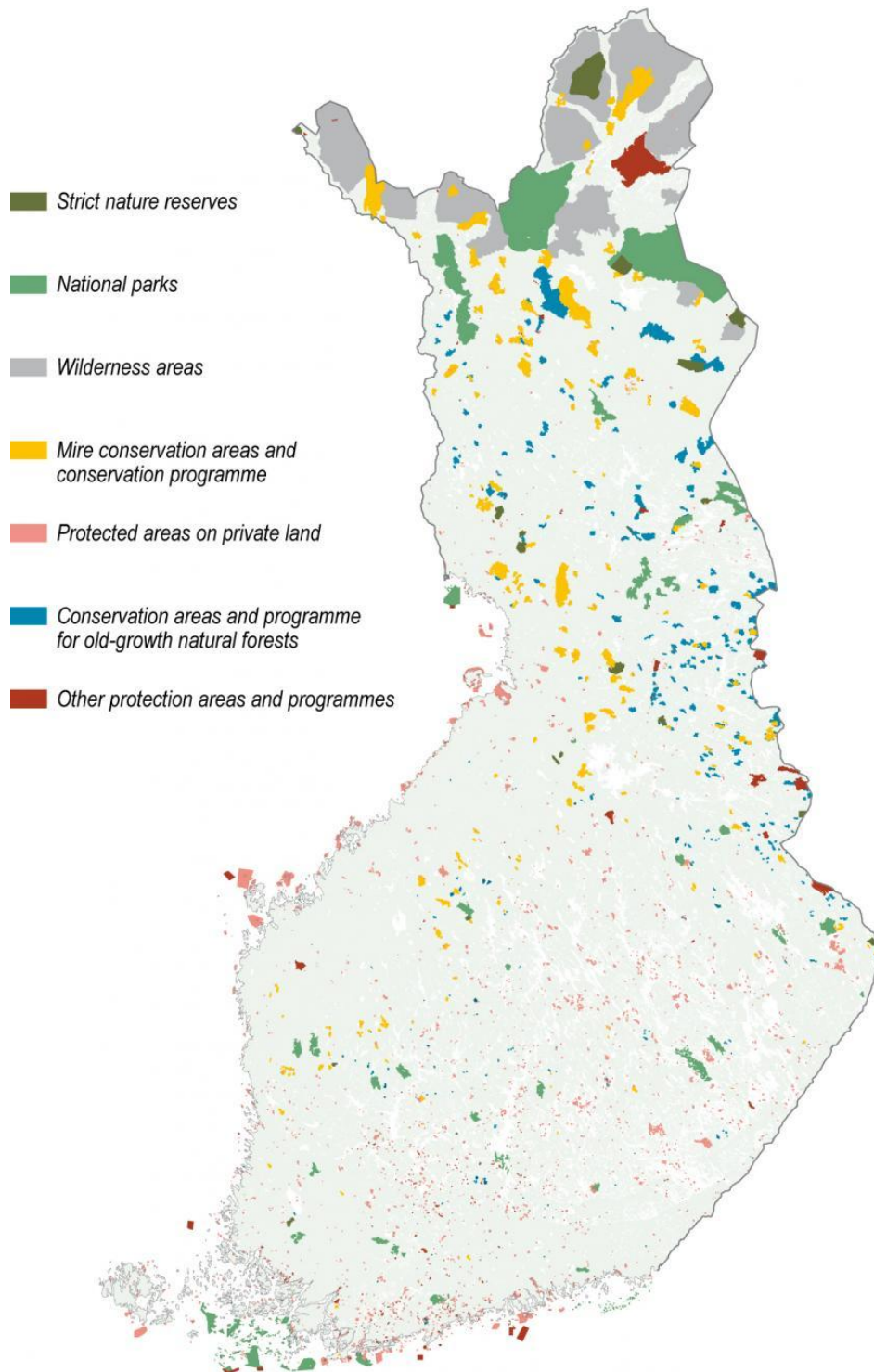
The Natura 2000 network safeguards the biotopes and habitats of species defined in the Habitats and Birds Directives of the EU 27. The majority of Finland's Natura 2000 areas, 97 percent, are nature conservation areas established under national decisions, or they are part of national conservation programmes or areas protected in some other way. The Natura 2000 network in Finland consists of 1 860 protected sites whose total area is 4.9 million hectares, of which 3.6 million hectares, or three fourths, are land areas.



*The natural characteristics of habitats of special importance, such as this spring, must be preserved during silvicultural works and woodcuttings. (Metla/Erkki Oksanen)*



*Deadwood is left in the forests in woodcuttings. Deadwood helps the survival of certain species (e.g. woodpeckers) on the site across tree generations. (Metla/Erkki Oksanen)*



*Nature conservation areas in Finland. (Metla/Finnish Statistical Yearbook of Forestry 2010)*

Biodiversity of Finland's forests is also affected by how the commercial forests are managed. In commercial forests, biodiversity is promoted, for example, by maintaining valuable habitats, increasing the amount of deadwood, and saving large broadleaves in cuttings.

## Organization of Forestry - Finland

In Finland the obligation to regenerate the forest after final wood cuttings has been since the beginning of 1900 and remains to this day the basic principle of the law. The Government encourages forest owners to use good silvicultural practices in the management of their forests. State subsidies are available for safeguarding sustainable wood production, maintenance of forest biodiversity and improvement of the health of forests.



*Forest thinning in Finland (Metla/Erkki Oksanen)*



*Collecting mushrooms and berries for private consumption is common in Finland (Metla/Erkki Oksanen)*



*Wooden construction. Metla House in Joensuu, Finland. (Metla/Erkki Oksanen)*

The industrial use of forests for sawn timber and paper products began in the late 19th century. Nowadays forestry and forest industries account for approximately 6 % of the Gross National Product. Relative to its size, Finland is more dependent on forests and the forest industry than any other country in the world. As a consequence, Finland has accumulated an expertise in forestry and industrial manufacturing of forest products that is unique in Europe.

The importance of forestry and forest industry as a source of employment continues to be an important factor in maintaining the vitality of rural areas and regional economy. In 2009 forestry and forest industry employed about 3 percent of all employed people in the Finnish national economy, three fourths of whom work for the forest industry.

Forest-related services and the use and maintenance of non-wood products are a natural component of forest management in Finland. Everyman's Right gives universal right and opportunity to use forests for recreation, outdoor activities and collecting berries and mushrooms, insofar as this causes no damage or disturbance.

One of the future challenges of Finland's forest ecosystems is climate change. According to latest studies the annual mean temperature is predicted to increase by 2–6 degrees by the end of 2100. Expected effects on forests are for example: growing season likely to lengthen; forest growth may increase; wind damage and insect will become more prevalent. Good and timely forest management is the main way of improving the ability of forests to adapt to climate change. In Finland strong emphasis has been put on the mitigation of climate change by promoting the use of wood. These actions include the increased use of wooden construction and wood-based bioenergy. In 2009 wood-based fuels provided 21% of Finland's total energy consumption; one of the highest figures within the EU 27.