

Forest characteristics and forest types - Norway

It is very difficult to give SHORT characteristic of Norwegian forest. It looks like a joke, but it is because Norway is LONG country. Its length, almost meridional, exceed 2 thousands kilometres. Such shape brings effects in country natural conditions. The timberline in vicinity of Bergen amount about 600 m above sea level, fall down nearly to sea level in the far North. The growing season vary in similar way. The number of days with temperature above 6 degrees C in Oslo region is 176 days, in Trondheim 115 days and 90 days in Kirkenes. Near Bergen, where Gulf Stream sweeps the cost, growing season is longest (194). More than 50 % of country it is high mountains not feasible for woody plants.

In spite of above the average forest cover amounts in Norway 20 % of total area (but 37 % forested and other wooded area); for the Eastern part of country 35 %, on the West 9 % and only 7 % for the North. Such diversified picture is (mainly) the result of climatic and topographic differences and the pressure of agriculture, in some part, too.

In total 7.2 mills. of hectares of productive forest, among the conifers, the Norway spruce and Scots pine are the dominants (introduced Sitka spruce is still growing in importance). Among the broadleaves the birch and aspen prevail.

Only Norway spruce and Scots pine, beside Sitka spruce on West coast, are economically important. Birch is valuable as fuelwood, and is also used in the pulp and particle-board industry (white/dawny birch – *Betula odorata*, lowland/silver birch – *B. verrucosa* and mountain birch – *B. tortuosa*).

The principal forest areas are found on inland South. Inland North has landscape dominated by low quality birch (*B. odorata tortuosa*), but in favourable sites some pine forest are found.



In general four ecoregions, by definition WWF, could be recognized in Norway:

1. Scandinavian coastal conifer forests
2. Scandinavian montane birch forest and grasslands
3. Sarmatic mixed forests
4. Scandinavian and Russian taiga

Each of them possess typical flora and fauna.

Typical and exceptional fauna and flora species in forests - Norway

Due to the large latitudinal range of the country and the varied topography and climate, Norway has a larger number of different habitats than almost any other European country. There are approximately 60 000 species of different life forms in Norway and adjacent waters (excluding bacteria and virus). The total number of species includes 2 800 species of vascular plants, 450 species of birds (250 species nesting in Norway), 90 species of mammals. About 40,000 of these species have been described by science. The red list of 2006 encompasses 3,886 species. 17 species are listed mainly because they are endangered on a global scale, such as the European Beaver, even if the population in Norway is not seen as endangered. There are 430 species of fungi on the Red list; many of these are closely associated with the small remaining areas of old-growth forests. There are also 90 species of birds on the list and 25 species of mammals and 285 species are listed as critically endangered (CR) in Norway, among these are the gray wolf, the arctic fox (healthy population on Svalbard) and the pool frog.

The largest predator on land is the polar bear, while the brown bear is the largest predator on the Norwegian mainland, where the common moose is the largest herbivore animal. In Norway still exist some of the most charismatic species in Europe: muskox, wild reindeer, white-tailed sea eagle and killer whales.

Natural vegetation in Norway varies considerably, as can be expected in a country covering such a variation in latitude. There are generally fewer species of trees in Norway than in areas in western North America with a similar climate. This is because the migration routes after the ice age is more difficult in the north - south direction in Europe. Many imported plants have been able to ripen seeds and spread, and less than half of the 2,630 plant species in Norway today actually occur naturally in the country. About 210 species of plants growing in Norway are listed as endangered, and 13 species are endemic. The national parks in Norway are mostly located in mountain areas, and only about 1.7 % of the productive forests in the country are protected.



Some plants are classified as western due to their need for high humidity and/or low tolerance of winter frost; these will stay close to the south-western coast, with the northern limit near Ålesund; some examples are holly and bell heather. The mild temperatures along the coast allows for some surprises; some hardy species of palm grow even as far north as Sunnmøre, one of the largest remaining Linden forest in Europe grows at Flostrand in Stryn and planted deciduous trees such as horse chestnut and beech thrives north of the Arctic circle (as in Steigen).

Plants classified as eastern need comparatively more summer sunshine, with less humidity, but can tolerate cold winters; these will often occur in the southeast and inland areas, examples are *Daphne mezereum*, *Fragaria viridis* and spiked speedwell. Some eastern species common in Siberia grows in the river valleys of eastern Finnmark. There are also species which seems to be in-between these extremes, like the southern plants, where both winter and summer climate is important (such as pedunculate oak, European ash and dog's mercury); other plants are dependent on the type of bedrock.

There are a considerable number of alpine species in the mountains in Norway; these will not tolerate summers that are comparatively long and warm or can not compete with plants adapted to a longer and warmer growing season; many alpine plants are common in the North Boreal zone and some in the Middle Boreal zone, but their main area of distribution is on the alpine tundra in the Scandinavian mountains and on the Arctic tundra. Many of the hardest species have adapted by using more than one summer to ripen seeds. Examples of alpine species are glacier buttercup, *Draba lactea* and *Salix herbacea*. Some alpine species have a wider distribution and also grow in Siberia, such as the *Rhododendron lapponicum* (Lapland rosebay). Other alpine species are common in the whole Arctic; some only grows in Europe, such as globe-flower.

Forms of nature protection such as national parks and Natura 2000 sites - Norway

The list of national parks of Norway covers 33 national parks on the Norwegian mainland (more than 22 000 km²), and 7 on Svalbard.

In addition to national parks, the Norwegian government has designated larger areas for protection:

- 153 landscapes parks covering 14 071 km²;
- 1,701 nature reserves covering 3 418 km²;
- 102 natural memorials,
- 98 smaller protected areas.

This accounts for 12.1 % of Norway's mainland area. The Norwegian government aims to increase this area over time to at least 15 %.

The idea of creating national parks is fairly old. This issue was discussed from early '20 of previous century. But first NP (Rondane) has only about 50 years. Let's have a look at some selected NP in Norway.



Rondane National Park is the oldest national park in Norway, established 1962. The park contains ten peaks above 2,000 metres), with the highest being Rondslettet at an altitude of 2,178 m. The park is an important habitat for herds of wild reindeer. The park was extended in 2003, and now covers an area of 963 km².

Jotunheimen (“Home of the Giants”) ***National Park*** is a national park in Norway, recognized as one of the country's premier hiking and fishing regions. The national park covers 1,151 km² and is part of the larger area Jotunheimen. More than 250 peaks rise above 1,900 metres, including Northern Europe's two highest peaks: Galdhøpiggen at 2,469 metres and Glittertind at 2,465 metres. The National Park covers most of the mountainous region of Jotunheimen. Glaciers have carved the hard gabbro rock massifs of the Jotunheimen, leaving numerous valleys and the many peaks. Wildlife includes the reindeer, elk, deer, wolverines and lynx. Most lakes and rivers hold trout.

Hardangervidda National Park, at 3,422 square kilometres, is Norway's largest national park. Designated as a national park in 1981, today it serves as a popular tourist destination for activities such as hiking, climbing, fishing, and cross-country skiing. The Bergensbanen railway line and the main Highway 7 cross the plateau. Several hundred nomadic Stone Age settlements have been found in the area. It has the southernmost stock of several arctic animals and plants. Its wild reindeer herds are among the largest in the world.

Jostedalbreen National Park is a national park in Norway that encompasses the largest glacier on the European mainland, Jostedalbreen. The park was established 1991, and then in 1998, it was enlarged to the northwest. The park now covers 1,310 square kilometres, with the glaciers covering about 800 square kilometres of the park. There is the Famous Breuseum (Ice Museum) within Park.

Forlandet National Park lies on the Norwegian archipelago of Svalbard. The park was created 1973 and covers the entire island of Prins Karls Forland and well as the sea around it. The Norwegian national park has an area of 616 km² and a marine area of 4031 km². This area is recognized for the world's most northerly range of Stone Seals and also the world's most northerly population of Common Guillemot. In the region there are numerous archaeological remains from Norwegian and Russian hunters and whalers.

At Svalbard (Spitsbergen), the Forlandet NP together with six others NP covers more than 60 percent of island area.

Organization of Forestry - Norway

Forests and other wooded land cover approximately 37 per cent, or 119,000 km², of the Norwegian mainland. Of this, almost 23 per cent, or approximately 72,000 km² is regarded as productive forest.

The productive forest is distributed between 125,000 forest properties. About 79 per cent of the productive forest area is owned by private individuals.

For Norwegian forestry, almost unlike other European countries, characteristic is simultaneously owes arable land and forest. In such circumstances the average size of forest property is about 36 ha.

Simultaneously exist big private forest property too.

Public forest corresponding to state forest has small share in total – 12 %. In general those are rather far from agglomerations, on poor sites. This 12 % of area bring less than 7 % of annual cut.

The Ministry of Agriculture is primarily responsible for the forest sector. Other ministries and institutions actively involved in forest matters are the Ministry of the Environment, county and municipal forest authorities, the State Forest Service.

The Forest and Forest Protection Act (1965, with later amendments) is the main legal framework for forest management. Other laws regulating the forest sector are the Nature Conservation Act.



In Norway, alike other Nordic countries, very important, crucial role plays organization of forest owners. One of the biggest and oldest is the Norwegian Forest Owners' Federation (Norges Skogeierforbund). The history of organization cover almost century (started 1913). It is a cooperative organization consisting of 8 district co-operatives and 368 local societies with 44.000 co-owners throughout Norway. The co-operation is an economic organization involved with marketing round wood and other forest products and working for technical progress among its members. The organization is also a considerable shareholder in Norwegian forest industries with the objective of securing a market for its products. The federation publishes a monthly magazine "Skogeieren" (The Forest Owner).

Norwegian forests have been exploited intensively for export of roundwood, sawn timber and wood tar for hundreds of years. In addition, there is a long tradition of using the forests for domestic animal grazing and game hunting.

Grazing (cows, sheep, goats) is in Norwegian forest common. This fact causes, that majority of private forests are fenced to prevent livestock from escaping. Fencing is done in such way, that doesn't disturb entering the forest by tourism; what is regulated in whole country as free. Free and still possible but generally for pedestrians (driving, horse riding need special permission if not on public way).

Another Nordic "speciality" is moose (elk) hunting. In Norway number of hunted stuck of moose vary between 40-50 thousands per year.

Another game species typical for the region – wild reindeer comes up to 5 thousands yearly.

In Northern part of Norway, rather in tundra than forest, very popular is herding of domesticated reindeer. Number of animal is about 200 thousands.