Forests returning to Iceland

At the time of human settlement over 1100 years ago, birch forests and woodland probably covered 25–40% of Iceland's land area. However, soon after settlement the Icelandic birch-woods were pushed back by clearings and sheep grazing. In the early 20th century they covered only 1% of the land.

Increasing forest area

Organised forestry started with the planting of a pine stand at Thingvellir in 1899. Planting increased in the 1950's, mainly with exotic conifers such as Sitka spruce, Scots pine, lodgepole pine and Siberian larch. Another leap in afforestation through planting took place in the 1990's. At present some 5 million seedlings are planted each year, and the forest area is increasing by 1,000–1,500 hectares per year. The most commonly planted species now are birch and Siberian larch, each accounting for 30% of the total, followed by Sitka spruce (12%), lodgepole pine (10%) and black cottonwood (6%). The remaining 12% of the planted trees represent over 20 species.

Icelandic forests in figures

Natural **Betula pubescens** scrub (<5 m tall)	100,000 ha
Natural **Betula pubescens** forest (>5 m tall)	20,000 ha
Plantations	20–30,000 ha

Most of the plantations are less than 15 years old. About 1/4–1/3 **consists of Larix sukaczewii**, 1/4 of native birch and the rest is made up of about 10 other species including lodgepole pine, Sitka spruce, Engelmann spruce, Norway spruce and black cottonwood.

The figures are estimates given by Thröstur Eysteinsson. There is still no nationwide forest inventory as yet, so it will be some years before "true" figures are available.

Forest Service

The Icelandic Forest Service played a central role in the early afforestation. But, since the 1990s, planting has been handled by other organisations. Six Regional Afforestation Projects have been established to manage the government scheme for afforestation on farms. Each farm afforestation grant covers 97% of establishment costs, including fencing, roads, site preparation, planting and the first thinning. The government funding amounted to 3.5 million USD in 2001. A goal of each regional afforestation project is to afforest 5% of the lowland area (below 400 m a.s.l.) in the next 40 years. It is estimated that within 50 years the forest and woodland area will have doubled from today's 1.3% to 2.5% of the land area.

The first forestry law was passed as early as 1907, and since then the forestry goals have been to protect the native forest and to afforest treeless land. The harsh conditions on Iceland require careful maintenance. For example, harvesting is only allowed through selective thinning.

Breakthrough

Forestry has a short history on Iceland. All wood used for construction has been imported, and until very recently the Icelandic forests were used solely as a source of fuel. However, some of the stands planted with exotic tree species have reached sizes at which they need thinning. Recently, the first truck-load of slender spruce logs was taken out from a thinning and used for making fish drying-racks. The raw material for these racks has been imported from Norway to date.

"We now have large areas of forests from which we can harvest 6–8 m poles in thinnings, says Thröstur Eysteinsson. We are of course far from being self-sufficient in this product, but it is still a break-through for Icelandic forestry".

Currently, Icelandic birch is used almost exclusively for firewood.

Photo: Jörgen Hajek, Skogforsk, Sweden

Forest research in Iceland

Forest research in Iceland is mainly executed by the Iceland Forest Research, a branch of the Icelandic Forest Service. The branch office, located at Mogilsa outside Reykjavik, has 15 employees, seven of whom are researchers. In addition, research is performed by various personnel in other parts of the Icelandic Forest Service, e.g. the extension department.

Trained abroad

Since there is no forestry school and no forestry degrees are awarded at university level in Iceland, all researchers are trained abroad. Four researchers have a PhD degree in forestry, geology or related fields from Sweden or Denmark. Another three researchers have Masters degrees in forestry from Norway or the UK. The head of the research branch is Adalsteinn Sigurdsen. Practical foresters are also trained abroad. At present, 32 foresters or forest technicians are active on Iceland. Most of these have been trained in Norway, but recently large proportions have also been educated in Ekenäs in Finland.

Genetics important

The main fields of research have traditionally been provenance testing and tree improvement, since afforestation of bare land has been a major issue in Icelandic forestry. Forest genetics is still important, but the research has recently been oriented more towards ecology, e.g. the maintenance of natural birch forests.

Carbon storage

The role of the forest in carbon sequestration has also become increasingly important. One researcher is working fulltime on this issue, and several others part time.

"Carbon storage in wood has become an important argument for planting trees", says Deputy director Thröstur Eysteinsson. "We are investigating the potential of tree planting to add to our commitments set by the Kyoto agreement".

Forestry related research is also conducted by the Natural History Institute, the Agricultural Research Institute and the biology department at the University of Iceland.

Sources: "Icelandic forestry in 2002", a report from the Icelandic Forest Service, and personal communications from Thröstur Eysteinsson, Deputy Director at the IFS. Contact: throstur@skogur.is

Photo: Iceland Forest Research.

Scaffolding erected in a 35 year old Larix sibirica *stand at Mjoanes, east Iceland, as part of ICEWOODS, a new research project that will focus on changes in species composition of birds, soil invertebrates and vascular plants that have occurred following afforestation with the introduced Siberian larch as well as changes in carbon sequestration, NPP and soil efflux of carbon.*