



KUNGL. SKOGS- OCH LANTBRUKSAKADEMIEN

The President's speech

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Listen to the wind sighing in the fir tree at whose roots your dwelling place lies.

These are the words on the cover of the reading book for elementary school dated 1907. The fact is that we Swedes are really attached to the forest, which is not so strange, given that more than half of our country is covered by forest. The forest assumes an almost religious dimension in the Swedish soul. Even the most ardent Christian churchgoer can choose to go for a stroll in the forest rather than attend Sunday morning service – and receive as much spiritual benefit as from a church service.

The United Nations declared 2011 to be the “International Year of Forests”. The objective was to raise awareness about the importance of sustainable forestry, and the conservation and development of forests worldwide. In the summer of 2011, Sweden’s Minister for Rural Affairs Eskil Erlandsson presented an action plan for “The Forest Kingdom” project. The vision of the project is for Sweden to excel in putting to use the potential in forests. In the autumn of 2011, the Rural Affairs Minister appointed the Forest Kingdom project’s first ten ambassadors to communicate and create awareness about the Forest Kingdom vision. To our delight three of these ten ambassadors are fellows of the Royal Academy of Agriculture and Forestry.

Forestry issues are naturally always among the top priorities within this academy. Among its many initiatives the Royal Academy of Agriculture and Forestry has set up a think tank for international forestry issues.

The forest is also the general theme at this commemorative meeting.

For a long time Nature was regarded as an inexhaustible resource. This was not surprising as there were relatively few people, particularly in the northern parts of the country. Some 500 years ago, the population of Sweden was no more than 500,000

people. Farmers could afford to slash and burn forests or woodlands to create arable land, and to make use of timber for the mining of ore and blast furnaces. This attitude is illustrated in a letter that Gustav Vasa wrote to the Swedish peasantry, in which he stated “one should occupy and cultivate the land, and cut down the useless forest”.

Today we view our forests quite differently. Forestry and timber processing are vital to the economy. The forest industry is by far the country’s largest net exporter. In 2010, the value of our forest exports amounted to 129 billion kronor. In addition, the forest has become increasingly important as a source of energy. In this context, it is primarily a matter of making use of residues and bi-products from forestry, saw mills and pulp mills. Wood is about to experience a new renaissance in the building industry. Wood has always been the most widely used material for building single-family houses. But up until 1994, there was a ban on putting up buildings with more than two storeys with wooden frames, which had its origins in the great fires which ravaged our cities in the 19th century. Nowadays, 15 per cent of our new multi-storey buildings have wooden frames. Wood is cheaper than concrete and it is climate-smart. In addition bio-refineries extract various chemicals from forest biomass, such as tall oil and cellulose specifically for the manufacture of viscose.

But the forest also plays an important role for our well-being. The Right of Public Access gives everyone a unique opportunity to roam freely in forests and on public and privately owned land. We can go for a stroll, go skiing, do orienteering, and gather mushrooms and pick berries there. The recreational value of the forest is also likely to become an increasingly important factor for forest-owners. In relative terms, fewer and fewer forest-owners depend on the forest for their livelihood. Nowadays, people rarely acquire forests to be able to hunt or go fishing, or as a pure capital investment. It is possible that the forest’s other values will come to play an increasingly important socio-economic role on a par with that of timber production.

The forest is of great importance for biodiversity. Globally it is estimated that two thirds of all earth-living organisms reside in the forest. The Swedish model enables the same land to be used for both timber cultivation and nature conservation. This is reflected in the protection not only of individual trees but also of key natural habitats. But various other measures can also be adopted to gradually increase long-term biodiversity by emulating natural disturbances in the forest. For instance, dead wood is created from standing stumps, ring-barking and by knocking over trees to uproot them. This form of environmental consideration can easily conflict with the general public’s desire to see the forest as a source of recreation and aesthetic value. City dwellers’ attitudes towards the forest are often contradictory. They find the message of biodiversity attractive, but see before them forests that are neat and tidy and attractive places to go for a walk in. I myself have been guilty of such a misconception. Many years ago I visited Venezuela and was going to take part in an excursion into the rain forest. To my great disappointment it turned out to be totally impossible to get into the dense vegetation of the rain forest. We were told very politely to walk along specially cleared paths.

The forest is also regarded as very important for the climate, our planet’s latest crucial issue. However, there are two quite different views in the debate about the role of the forest for the climate. On the one hand, there is the view that harvesting should be reduced and large timber stocks, which store carbon, should be built up. On the other hand, others hold the view that the forest should be cultivated as much as possible to

provide more bio energy and biological products. To maximise the storage of carbon in the forest by stopping the harvesting of trees is effective in the short term, while stimulating growth provides long-term and permanent benefits. This is achieved by the forest continually growing and providing raw materials to replace for example steel and concrete, which have a negative impact on the climate. It is this substitution effect that I believe to be the forest's greatest benefit for climate.

At present, Swedish forestry legislation is based on the principle that production and environmental targets should be of equal standing. But it can be questioned whether every forest area should satisfy these requirements. Personally, I believe in a diversified utilisation of the forest with productive forest areas being divided into three types of forestry: intensive forestry, natural forestry, and uncultivated forests. Intensive cultivation of some areas of productive forest will make it possible to set aside more areas that will not be cultivated. On a global level, it is estimated that there will be less harvesting of natural forests and that plantation forests will become the most important source of wood. Furthermore the production of plantations will increase as a result of further processing and improved forestry practices.

Sustainable forestry is based on advanced information about the resources of the forest and its biological and social environment, which is collected by various forms of forest inventories. An important breakthrough in the application of remote sensing in forest inventory-taking is known as the LiDAR (Light Detection And Ranging) method, which has been developed by Professor Erik Naesset, who was awarded the Marcus Wallenberg Prize in 2011.

Advances in research and technical development will play a key role in the forestry sector.

Nanotechnology, i.e. modification of materials that are less than 100 nanometers, is expected to revolutionise the production of new wood products. For example, paper with improved surface characteristics can be manufactured and "intelligent" products with nano sensors can be produced to measure pressure, humidity and temperature for instance. Although nano-products will only use a very small proportion of our forest resources, nanotechnology will create new opportunities, especially for the paper industry. The pulp and paper industries will probably evolve into providers of a mix of processed fibres, "green" chemicals and energy through the construction of bio-refineries. These refineries will be able to produce a wide variety of products such as ethanol, starch, organic acids, polymers, bio-plastics, food and animal feed. Bio-refineries will also play a major role in reducing dependence on fossil fuels.

The need for wood as a raw material will increase. In Sweden we expect that effective forest-tree improvement combined with optimal growth conditions could, in a relatively short time, increase timber production by 50 per cent. In the debate on the conservation of biological and genetic diversity, protection and breeding are often portrayed as opposites. But, the prerequisite for all forest tree breeding is that there is a genetic variation in species that can be applied and managed. Preserving genetic diversity is, therefore, a natural and necessary part of the improvement programmes that are intended to run for many generations.

With the aid of modern biotechnology, it is possible to propagate trees vegetatively by means of somatic embryogenesis. This allows a large number of plants with identical genetic set up material to be obtained from the very best trees. One current area of research is to increase knowledge of the way in which various characteristics of the trees are regulated, such as wood formation, stress tolerance, resistance to disease and various growth components. Scientists are identifying which genes are important for these characteristics and how gene expression is regulated. Knowledge of the importance of various genes to valuable characteristics will also make it possible eventually to raise the effectiveness of improvement programmes by selecting individuals that carry appropriate gene combinations. By sequencing the entire genetic material of the trees we obtain an even more efficient tool for studying how trees function. The entire genome of several agricultural plants has now been sequenced, as have poplar and eucalyptus. More tree species are about to be sequenced, including our spruce, whose sequence will be published shortly. Genetic engineering is playing an increasingly important role in forest tree improvement.

It must, however, be remembered that forest production is a slow process. This can be illustrated by the fact that Sweden in the early 17th century, as part of a government plan to ensure the supply of timber for the Navy, began cultivating oaks on the island of Visingsö. During a ten-year period 300,000 acorns taken from different parts of the country were planted. The oak forest was tended with care and in the 1970s the Swedish Forest Service was in a position to offer the Head of the Navy the 350-year-old oaks for ship construction. The offer was declined.

So, forestry is complex, an area of conflicting interests. The forest is to provide plenty of wood and bio-energy, host rich biodiversity and provide people with experiences and recreation. The significance of the forest in reducing future climate change has become increasingly important in climate talks. The most important thing for the climate is to reduce the use of coal and oil and to cut the level of deforestation. This requires daring and innovation, qualities that our academy is well placed to contribute through our members' deep and broad expertise in the agricultural sectors.