

Case study: Nils-Olof Larsson, forest owner



ACE member companies are committed to sourcing their main raw material, wood fibre, primarily from Nordic forests that are responsibly managed by people like Nils-Olof.



A family affair

Nils-Olof Larsson is a forest owner in Gästrikland province, Sweden. He lives in a village near Österfärnebo surrounded by a total of 2,500 hectares of forest. In 1870, this forest was divided up according to quality and the divisions are now owned by nine different families in the village. Nils-Olof owns 320 hectares across three divisions, which is above average for a private forest owner in Sweden (average private ownership is 70 hectares), while his wife Eva-Lisa owns a further 60 hectares in a neighbouring village, which she inherited from her family. In fact, Nils-Olof's farm and land have been in the Larsson family since the 14th century, and will be passed down to his two sons when Nils-Olof retires.

In addition to managing his own forest, Nils-Olof also trains contractors in operating the increasingly high-tech equipment used in modern forestry practices, regularly travelling to Russia and several other countries to up-skill workers on behalf of machinery manufacturer, Caterpillar.

Renewability in practice

Taking care of the forest and its ecosystem underpins the daily work of Nils-Olof. He explains: **“the forest is my livelihood, so it’s really important that I manage this natural resource well. Healthy growth of the forest means healthy growth of the industry. I take this responsibility very seriously.”**

Nils-Olof has recently carried out the Forest Stewardship Council (FSC) certification process with the support of Korsnäs, which purchases 1,400m³ of pine, spruce and birch from Nils-Olof each year for paperboard production at its mill in Gävle, 60 kilometres away. FSC certification requires high standards of responsible forest management, the results of which are evident throughout Nils-Olof's forest.

For example, Nils-Olof undertakes detailed and long-term planning for all forest areas, including harvesting and conservation plans – ensuring his work is both profitable and environmentally sustainable. By managing his forest responsibly, Nils-Olof says that it grows in volume by 1,550 m³



Nils-Olof and Bengt Brunberg, Environment & Information Manager at Korsnäs, survey sustainable logging routes.

every year. Typically three to five new trees are planted or grow naturally for every tree harvested in final felling. Most of these are cleared after 30 (first thinning) or 60 (second thinning) years, while one tree is left to grow to full maturity at 80 years before being harvested.

Thinning is the practice of removing selected trees to improve the overall yield of a stand. As trees grow, they eventually occupy all the growing space, crowd out lower growing plants and compete with each other for light, water and nutrients from the soil. Thinning removes smaller trees before growth slows and keeps crop trees growing rapidly. Thinning is also an important tool in improving the quality of wildlife habitats (which is discussed in more detail below).



Final logging activities are conducted by Nils-Olof himself or with the help of a small number of harvesting sub-contractors, with perhaps four or five people and two machines. The machinery used by Nils-Olof is particularly advanced, with a computerised system that can be programmed to cut the trees to the exact lengths and volumes required by the customer.

After Nils-Olof harvests a tree, none of it goes to waste. The larger logs are used for construction timber, while the smaller ones are pulped and made into paperboard for products such as cartons. In addition to timber planks, just one tree can provide wood fibre for around 1,500 one litre beverage cartons. Plus, thanks to the responsible and certified forest management practices employed by Nils-Olof, all the products made from his trees may be sold as certified and labelled as such for the end consumer. Smaller branches and the logging off-cuts may be used for energy purposes in district heating, while the bark, sawdust and other by-products resulting from the sawmilling and pulp-making process are used for bio-energy production at the mill.

Conservation is key

Responsible management, along with certification schemes, contributes to maintaining a natural level of biodiversity in Nordic forests. In practice, Nils-Olof explains, this means taking a number of protective measures, including:

- > planning logging routes and preparing the ground with dead and harvested branches to avoid unnecessary damage to the soil from machinery
- > leaving buffer zones around water courses to ensure soil and debris from the banks do not fall or crumble into streams
- > leaving dead wood, a number of high stumps (approximately three 3m stumps per hectare are required for FSC certification) and retention trees to benefit wildlife
- > leaving forest set asides (five per cent is required for FSC certification)
- > maintaining and enhancing the mixture of tree species
- > using GPS to help manage planning and 'site-adapted forestry' techniques with far greater precision



Nils-Olof also leaves high stumps to protect areas of particular ecological value, such as 80-year-old charcoal rings, from being disturbed by logging machinery. Opportunities to enhance the natural environment for biodiversity reasons are also key considerations for Nils-Olof. “In one area, where we were building tracks to provide access to the forest, we built a watering hole specifically to encourage wildlife to the area”, he said.



New beginnings

In Nils-Olof's forest, trees that are harvested are replaced both by the planting of young seedlings and through natural regeneration.

Spruce and pine seedlings are sourced locally from the Nässja nursery, which produces approximately 14 million seedlings annually, contributing to a total of 350 million seedlings that are grown and planted in Sweden every year. Germination begins in the greenhouses, which contain 800 seeds per square metre in peat-filled trays. The greenhouses are kept at a consistent temperature to ensure 100 per cent germination without using chemicals, while water from the nearby Dalälven River keeps the seedlings hydrated.

After five to ten weeks, the seedlings are transferred into larger trays and continue to grow outside at the nursery until they are the optimum size for planting (20-22cm for spruce and 18-20cm for pine). Size and quality consistency are achieved by covering the seedlings from 7pm to 7am in the spring, summer and autumn – controlling daylight and hardening them to frost earlier – and, in winter, protecting them with artificial snow to survive the cold.

When the seedlings are ready to plant, typically after twelve to eighteen months cultivation, they are packed into boxes and delivered with the roots in the peat in which they were grown. Because planting typically takes place twice a year – in autumn and spring – the seedlings may be placed in frozen storage at -4°C until the forest owner is ready for them. All the trays are reused for cultivation of new seedlings; in fact, some of the trays still in use at the Nässja nursery were first sown in 1972!



Working with nature

Bengt Brunberg, Environment & Information Manager for Korsnäs Forest in Sweden, which purchases wood from Nils-Olof for paperboard production, concludes:

“We have been working so long with sustainable forest management practices but now it is of great interest to our customers. My hope is that the public will come to understand our work and see that managed forestry doesn't just help the economy, it helps to regenerate rural areas and bring families back from the towns. We want to protect the forests and ensure that we don't just have a renewable resource but that they remain a source of pleasure and enjoyment for local communities, and a home to wildlife, for generations to come.”