

Creating economies of scale

The Western-most “Bundesland” in Austria, is a pioneering region for timber design, renewable energy and sustainable land use in general. **Stefanie Kaiser** finds out how a co-operative forest service allows small forests to be managed making use of economies of scale for timber marketing and conservation.



The alpine and densely populated region of Vorarlberg features a network of very small forest lots, with an average size of only five hectares. This includes some larger forest enterprises but mainly holdings of about one to two hectares, often privately owned. Nevertheless, forest management in the region is not only highly sustainable in the ecological sense, but also economically viable, thanks to a structure of collective management.

“We have the advantage that CCF has a long tradition and on our small forest areas we have a semi-natural mixed-aged structure. Felling has a very low visual footprint in the management of ‘close-to-nature forests, and therefore, public acceptance is fairly high. According to a National study in Austria, Vorarlberg ranks highest in ‘naturalness’ of their forests”, says Thomas Ölz, Head of Forestry, Chamber of Agriculture.

Mastering cross-ownership management “The ‘urbanised’ landowner, with no knowledge of or interest in forestry and timber marketing, is becoming more and more common in the region. They are often unaware of the location or sometimes even the existence of a forest lot they have inherited. It is

Making small-scale low-impact timber production work

Clearfelling, defined as >0.5ha in protective forest and >2ha in productive forest, is not part of the Austrian forest management approach.

The use of harvesters in felling only accounts for about 2-3% in the main valleys of Vorarlberg and low-impact harvesters are used for thinnings. The secret lies in the logistics of collective forest management.

A landowner who wants to fell a few trees can call the *Waldverband* and enquire about current market prizes and timber sizes in demand. He/she then cuts to size and leaves the timber at roadside. The *Waldverband* collects the logs at a suitable time to save transport costs. Logistics are the decisive factor here.

“In the case of protective forests, we mostly have to use skylines due to difficult access. Luckily we can cover costs here, as better rural develop-

ment grants are available in the case of very low-impact felling methods, which otherwise would not be affordable”, says Walter Ammann, chairman of *Waldverband*.

Overall, forestry is usually profitable within the currently used collective management system. Some of this profit will be invested in forest maintenance and maintenance of trails and forest roads. But it has to be considered that in such semi-natural forests, maintenance costs are significantly reduced due to the fact that no replanting is undertaken. This can save around €5000-10,000 of afforestation costs per hectare.

“Our maintenance costs are minimal, as timber extraction serves the purpose of forest maintenance at the same time. Basically most of the management costs you have in a plantation forest don’t occur here.”



for small-scale forestry

for those people that the Chamber of Agriculture, a governmental body representing land owners, offers a forest management and timber marketing service called *Waldverband*, a forestry co-operative”, explains Thomas Ölz. Owners of land over one hectare are obliged to be members of the Chamber, but using the service of the *Waldverband* is optional.

This non-for profit service aims to ensure the management of a network of very small forest holdings. It allows for cross-ownership management to be conducted by experts with relevant forestry skills.

Different services available

- Round wood marketing
- Specific forest management contracts
- Complete lease of forest to chamber (hands-off approach): the chamber is in charge of everything from compliance with legislation to management and timber marketing. The owner gets a percentage of any net profit.

Timber species and marketing

Conifer species predominate in the region. In terms of land area, 60% is spruce (*Picea abies*) and around 12% is Silver fir (*Abies alba*). The remaining part are

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Walter Ammann, chairman *Waldverband*, and Thomas Ölz, Head of Forestry, Chamber of Agriculture



Thomas Ölz and Walter Ammann show examples of skyline and harvester extraction sites. (1) Rack resulting from a skyline extraction performed two months earlier (2) impact of recent harvester extraction

Skyline extraction

“We fitted a skyline of about 300m between two slopes to fell trees along the rack. This is an example of a protective forest that is also managed for timber. Some older trees are felled to allow for younger, stronger trees to regrow and stabilise the slope. And at the same time (and not less important), we want to market good timber. We extracted 400m³ of timber from three racks”.

The hand felling along each of the racks takes a pair of contractors roughly a day. The skyline is set up in half to three-quarters of a day, and the timber transported down to roadside in another day and a half. In this convex landscape, no pillars are needed. “We simply use pillar trees and anchor trees. Once the trees are left at roadside, a small processor de-branches and pre-cuts them before a haulier picks up the logs and later, the firewood.

- Skyline extraction cost per m³ €40
- Ave value or profit per m³ €20-30

In spite of the additional small fee for the public forest management service, a small profit can be achieved even in small-scale and difficult-to-access forests.

Harvester and forwarder

“In the example (2), we have taken out 300m³ of timber (that’s 10 lorry loads) but, as you can see, you can hardly notice the felling impact at all.”

These extraction racks will be used again in ten years’ time. The harvester only move along the racks and trees are hand-felled selectively on each side into the rack. “We only fell trees that can be pulled out to the access route (eg using winches attached to the harvester) without further impact to the surrounding forest.” Extraction routes are planned every 40-50m to reach most of the forest areas. On occasions, horses are used for log extraction.

1



2



Bregenzerwald, a region of Vorarlberg, is particularly famous for its timber buildings and is has attracted many architects from around the world in the last decades. (1) A typical contemporary timber building in Andelsbuch featuring a Silver fir cladding (source: www.holzbaukunst.at) and (2) traditional shingled house in the same village (source: Flickr gaschy22)

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broadleaves, mainly beech, sycamore and ash.

In the case of softwoods, the 'top-half' of saw log production is fed into the regional network of mainly small sawmills (with some medium-sized mills producing up to 70,000 solid m³ pa). Sawmills are mostly specialised, working with band saws that process logs of >40cm dbh into a variety of products. Small round wood is fed into larger-scale processors in other Austrian regions. At present, wood up to 50cm goes into these markets, as a sawlog processor in the region has shut down and regional saw log supply is currently exceeding demand from sawmills.

Roundwood is mainly processed into biomass (due to the distance of other processors, this is currently the most cost-effective market), plywood and board or traded internationally as raw-material for other wood-based industries. Some larger forest companies also sell into the pulp industry. This can be profitable even for small-scale forestry. It is an option in areas where mechanised harvesting is possible and timber down to 8cm dbh can be used.

Only just over half of the available annual increment is being used, ie about 350,000 of around 600,000 solid m³ per year.

TIMBER PRODUCTION IN VORARLBERG

Annual figures in solid m³

Total 300,000 - 350,000

From total of small Waldverband forests
50,000 - 60,000

From the largest single business (8000 ha)
15,000 - 20,000

Source: *Walter Ammann, Waldverband*

A zoning approach for deer management

For deer management purposes, Vorarlberg is divided in core zones, buffer zones and free zones. The red deer is encouraged to remain in the core zones, which are managed to offer a suitable habitat for them.

Regional culling quota are negotiated on an annual basis. Every three years, the impact of deer on vegetation is assessed for this purpose, using 6x6m plots in a 50m grid. This system is applied regardless of land tenure, across the whole county.

Unlike in other countries, in Austria deer is being fed over the winter. In particular in the densely populated and alpine regions, large parts of natural habitats have been lost; in nature, the animals would follow a pattern of remaining in lowlands in winter and moving up into higher altitudes in summer. By feeding them, they can be kept in areas that offer a habitat for conservation while protecting managed forests in other areas at the same time.

Forest and deer management are planned in parallel, and the zoning approach allows foresters to rely on natural regeneration in managed forests despite the existence of deer. Silver fir, for example, is a very deli-

cate species, but the deer density is kept low enough in this type of forest to be sustainable and not significantly threatened the regrowth.

Despite all the efforts, deer remains a big challenge for foresters in the region. However, due to the zoned management, at least in the 'free' lowland zones many different tree species can now thrive. But the problem has now moved upwards and remains a threat to protective forests.

Although there is a well-structured regional-level management plan, the actual deer population almost doubles the target numbers. Private hunting is only allowed on private land of more than 115 ha. Smaller lots are organised in collective hunting grounds of at least 300ha. The leasing of hunting rights is decided by the co-operative, and individual forest owners get their share of any revenues from the lease of hunting rights.

Rewilding is a hot topic in a region with several remote alpine borders. The lynx is slowly moving back in from neighbouring Switzerland, and is a welcome predator. The occasional sighting of wolves, however, is seen as much more problematic.



Red deer (Photo: Franz Kovacs, Bundesforste)