

ANNE-SOFIE FORFANG

Barritskov Estate



87

At the Barritskov estate in Southern Denmark, sustainable forestry is no longer just a phrase.

During the past 10 years, principles of sustainability have become increasingly turned into practical forest management on the estate. In Denmark, the Barritskov Estate is seen today as a frontrunning practitioner of continuous cover forestry and sustainable agriculture, pioneering the integration of nature conservation into commercial land resource management.

The owner of the estate, Mr. Thomas Harttung, is the main driving force behind this development. In order to explain his motives and ideas, he kindly agreed to give the following interview.

«What is the philosophy behind the forest management at Barritskov?»

We manage the forests at Barritskov along the principles of continuous cover forestry. I first heard of these principles as a student of forestry at the Agricultural University of Copenhagen in the late seventies. I did not apply them immediately to my work as a private forest owner because they were still considered somewhat outrageous at that time, but I did become ‘infected with the disease’; and gradually as I worked with the forests I moved more and more in that direction - especially after taking over the practical management of the estate in the late eighties.

For every year since then, we have become more convinced that working with nature, applying ecosystem approaches to forestry, is a workable system. At Barritskov, we are in a very fortunate situation because a large part of the forest is ancient broadleaved woodland. It is a broadleaf mixture of beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*) and oak (*Quercus* spp.), and a certain element of sycamore (*Acer pseudoplatanus*) and alder (*Alnus glutinosa*). The sycamore has been introduced but is able to function within the system, so we tolerate the species although it is not indigenous. Other indigenous species, such as lime (*Tilia* spp.) and cherry (*Prunus avium*), also occur spontaneously from time to time, and they are encouraged as well.

So the tree species that we wanted to work with were already in the system, which was a great advantage.

The forest, however, had an even-aged forest structure. Now we are gradually and slowly turning the forest into a more complex structure, using the target diameter principle when selecting trees for cutting.

We have a limited Christmas tree production on the estate, but gave up planting them six years ago. The Christmas trees are certified as organic because the forest is part of our organic certification. After having spent a lot of time trying to organise an organic system, we could see that it made very little sense. So we have an exploitation system now where trees ending up looking like Christmas trees are harvested, and the others are left. Many of the present stands will form the supportive canopy for reintroducing indigenous tree species to the forest. Some former agricultural parts, presently planted with Christmas trees, will become pasture again after harvesting.

It is important to stress that this kind of management is about doing less, not about doing more. We are leaving more situations to be worked out by the system itself. For example, we have allowed the population of foxes to go up instead of shooting them. Foxes eat mice, which helps to reduce the problem of mice damaging beech trees. That comes at a sacrifice though, because tolerating foxes means that pheasants and partridges and even ducks have a very hard time here. So ground-nesting birds suffer from this strategy.”

Why do you want to conduct this kind of forestry?»

The main reason is my wish to operate a resilient system - a system which will achieve the maximum stability in the future. By that I mean biological, financial, and social stability.

The biological resilience comes from the fact that the principles of continuous cover forestry are minimum-interventionist, allowing the ecosystem to maintain its natural processes. Moreover, the system involves mixed stands and native, site-adapted tree species, which also enhances stability and resilience against storms and diseases.

Our basic assumption is that this system is also financially more viable than age-class forestry. However, we have accepted a lower income in the process of converting the forest for the last five years. We did not want to make too many mistakes, so we decided not to cut too many trees in this period, until we knew exactly what we want to do in the specific areas.

We have also decided to forfeit income from game hunting licences - not permanently, but just for the



Barritskov Estate intends to rely exclusively on natural regeneration as part of the continuous cover silvicultural system. (Photo: Nepenthes/Peter Sørensen).

time being, while we're developing the strategy to make quite sure what to do. If we then find that we need the income from game hunting, then we will rent out the shooting again. But if we find that we have managed to develop a system which is financially sound, we will then consider the game management to be an integral part of managing the estate and we will do it ourselves.

In most Danish foresters' eyes, the decision to give up growing Christmas trees involves a financial sacrifice. But this is only true if Christmas tree growing remains financially viable, and this can be questioned.

By social stability I mean that you cannot only manage forests along financial guidelines in the 21st century. The estate as such would run a risk that other people would interfere. If these forests were only managed by financial guidelines, people would say that we are not taking biodiversity into account. So we need to manage these forests in such a way that we are looked upon by the rest of society as managing them in a sensible way".

What are you doing in order to integrate nature conservation into the forest management?

I would say that we do this partly through our minimum-intervention approach to forestry. We are fooling around much less with nature in the forests than on our agricultural land. Also, we are changing the drainage management of the forest. For a number of years we have not maintained the ditching system, and we will accept the fact that the hydrology of the forest is going to change. This also means that we will have to change the tree species composition because the forest will become wetter. We have simply set this natural process in motion, and we will see where it takes us.

We do leave dead wood in the forest, but not trunks that would make good quality timber! Furthermore, we have a tradition of protecting single trees on the estate: One of our predecessors put a protection order on 90 very old trees in the forest. Today, we continue this tradition by making use of the available State subsidies for leaving single trees to age, decay and die.

The same owner also protected a small part of the forest - just about one hectare - as untouched forest. Now we have just finalised an agreement with the Forest and Nature Agency to protect the entire coastline of the estate as 30 hectares of untouched forest. The coastline is an especially valuable part of the forest because it contains coastal dynamics, it has a number of orchids that are very rare, and other species that are endangered.

We have carried out an inventory of woodland key habitats in the entire forest, and we have also made a survey of the flora of the forest floor; but we have not integrated these surveys into our management planning yet. Right now, we are in the process of doing so. The integration of our nature survey work will be the key element of the landscape planning process for the entire estate, which is scheduled to take place during 2001. We will do it in combination with site soil mapping of the entire estate.

We expect that stand tables will become less important as a management tool in the future, and instead we will have to map resources with thematic approaches. As an end result of our work, we will disintegrate the present compartment system of our map into site condition growing sectors which will be very large. So the forest inventory will be an ecosystem inventory rather than an age class inventory.

One of the interesting parts of the key habitat inventory is to put it into practise within forest management work, so that the people who are extracting timber know where the biodiversity hot spots are and are able to avoid doing damage to them. Now when we do our thinning, we start by consulting our key habitat inventories to see if there are special elements which we need to take into account.

Some forest meadows are maintained by cattle. We also think it would be rather interesting to re-introduce large grazers into the forest, but I am concerned about our own crops and especially our neighbours' crops. This problem and some of the problems with the roe deer might be solved by fencing, but I have a personal aversion against fences! I do not wish to create barriers to the free roaming of for instance roe deer - and fences are expensive, too.

We tried once to introduce pigs as an "inventive regeneration machine", but that was a biological catastrophe - the pigs spoiled the structure of the top soil. The reason why it did not work probably is that the number of pigs necessary for the "regeneration benefit" was too high for the type of soil found at Barritskov. The soil here is a heavy clay which makes it more vulnerable to disturbances by pigs. Probably pigs would do less harm on lighter, more sandy soils.

**PRO SILVA:
FORESTERS
WITH AN
ECOSYSTEM
APPROACH**

Thomas Harttung is the chairman of the Danish Pro Silva Group which comprises around 320 members corresponding to about 5 per cent of Danish foresters. The Danish Forest Owner's Association gave the Forestry Prize of the year 2001 to the Danish Pro Silva Group and personally to Thomas Harttung and a colleague for their work within this organisation. He presents the organisation:

"Pro Silva is a European organisation of foresters and scientists involved in close to nature forestry. The organisation has groups in 23 countries around the world, of which Denmark is one. The nucleus of the close to nature forestry tradition comes from Germany, and it was born out of theoretical work on German forestry which dates back about 120 years. Theories about working with nature and working with an ecosystem approach to forestry are gaining

more and more recognition all over Europe in sustainable forest management. It seems that those who were in charge of developing sustainable forestry principles looked around in the literature to see what was available; and the greatest source of inspiration has been out of these German foresters who studied ecosystems and developed management approaches that were in line with sustainable principles".

Most Danish foresters complain that the natural regeneration of native broadleaved trees is impossible due to the high levels of roe deer found in Danish forests. What have you done about this problem?

Three years ago, the forests here held a high population of roe deer. The high population was maintained because the shooting brought an income to the estate, and because it was an old tradition. So although I knew that we really should reduce the population, it was a difficult decision to take because it went against the traditional management of the estate. But after a long deliberation, the decision was made, and it resulted in a very considerable reduction of the population - about 80% were shot, or 200 out of an estimated population of 250.

This naturally provoked reactions from the neighbours and the Danish press, but we just went ahead and did it. We thought we would rather have the fight afterwards, than having the fight first and then have the trauma of doing the work when people were very cross with us. In retrospect we should have done at least some consultation with our neighbours because that would have reduced the rumours of what was going on. I have learnt from this that telling certain key people what we were doing would have been better than saying nothing!

We managed to reduce the population of roe deer, but it was very, very hard work - our game keeper did nothing else for 4 months. Our neighbours were concerned that this forest would become a magnet, and that the roe deer would leave their forests and come here, but they didn't. Roe deer are not migratory, they stay where they are born and only leave their place of birth if they are forced to it. So we haven't stolen our neighbours' roe deer which was their concern - but we've stopped producing an excess that

will move over to them. A lot of their shooting was based on emigration of deer from here all the time.

We have experienced that a reduction of roe deer can be achieved. We wish to have a winter population of 40-50 roe deer on the estate, and that can be sustained. But it is still a lot of hard work - if we don't shoot, the population will explode again within a matter of three or four years.

We must keep the population of roe deer permanently low in order to allow the reintroduction of tree species that have been lost. We have records of the deer numbers shot from 1850 until today. In the old days, they shot 10-15 roe deer per year. For every 20 years, the numbers would increase by a figure of 10 or so. So it has been constantly on the rise. If we just allow the number of roe deer to go up again, we will stop the good work that we are doing.

How have your Danish colleagues reacted to your unusual management strategy?

That has been a very positive experience. Most of my colleagues like the fact that somebody is doing this, and that I can make all the mistakes which they can then benefit from!

However, it is important to realise that the geography and topography of this estate has made the decision easier for us. I share no forest boundary with anybody, the estate is self-contained, and it is on the coast so I have only 3 borders. I have less of an impact on my neighbours than most other estates would have. That has made it easier for me to make the decision than it would be for many others.

Still, I expect that in 20 years' time many more of the private Danish forest owners will be implementing close to nature forestry. And this development will



Barritskov estate covers 690 hectares of forest, fields and meadows. Forests cover more than half of the total area.

be even more pronounced in the State Forests. Simply because it makes sense - the integrated approach is a benefit to all. The evidence from Germany and some other countries is now very strong, and the argument that we will lose money by converting forests into close to nature forests has

lost its validity. We do not lose money; in fact, it makes very good sense. The question is how to achieve this conversion, and patience is a vital element. You cannot do it overnight; you have to consider it a long-term project. The Germans who developed the system stressed this very much».

BARRITSKOV ESTATE

Barritskov Estate is a private estate situated on the coast in the South-Western part of Denmark. The estate comprises a total area of 690 hectares, of which forests cover more than half (approximately 375 hectares). The remaining area consists of agricultural areas (270 hectares), meadows (15 hectares), and non-productive areas such as the coastal zone, roads etc. (30 hectares). The estate is managed by principles of sustainability both within the forests and on the agricultural land, and all of the estate is certified as organic. The owners of the estate have taken an innovative stand to both agriculture and forestry and developed several new concepts previously unknown in Denmark.

Forestry

At Barritskov, they have started to convert the age class forest, slowly turning it into a more naturally structured forest ecosystem. Emphasis is put on the use of natural regeneration, and planting is only used as the last resort in places where the

natural regeneration of trees turns out a problem for many years. They have also made several adjustments with a notable and immediate impact on forest economy: A drastic reduction of the roe deer population has been carried out, and it was decided to at least temporarily forfeit the income from hunting licences. The forest is part of the estate's organic certification, which means that all use of pesticides and artificial fertilizer is banned - including in the present Christmas tree plantations, this reduces the potential income from the Christmas trees a great deal. Also, growing of Christmas trees has been discontinued and will be gradually phased out as the present stands mature. In doing this, the estate has given up some of the most important sources of income for Danish private forest owners. In general, revenues from the leasing of shooting rights and growing of Christmas trees are cornerstones of the private forest owners' economy. Commercial production of Christmas trees is allowed in up to 10% of the forest lands in

Denmark; thus, Christmas trees are often grown inside the forest fence involving relatively large quantities of pesticides and fertilizer.

Non-Timber Forest Products (NTFPs)

At the moment, the estate supports a project on the extraction of medicinal herbs from the forest. The project involves identifying plants, taking up preliminary contacts with the medicinal industry, and in particular developing new sustainable yet effective harvesting techniques.

Organic farming and Eco-Vegetables Trade

The agricultural parts of the estate are run on an organic basis, and all of the estate is certified as organic. Barritskov Estate established the Internet company 'Aarstiderne' which trades in organically grown vegetables. Aarstiderne delivers vegetables to the doors of Danish consumers all year round. Every week, subscribers receive a wooden case with the organic-vegetables of the season.

ANNE-SOFIE FORFANG
Biologist

NEPCon- Nature, Environnement and People Consult,
Postbox 5102, DK-8100 Aarhus C., Denmark,
E-mail asf@nepcon.dk

