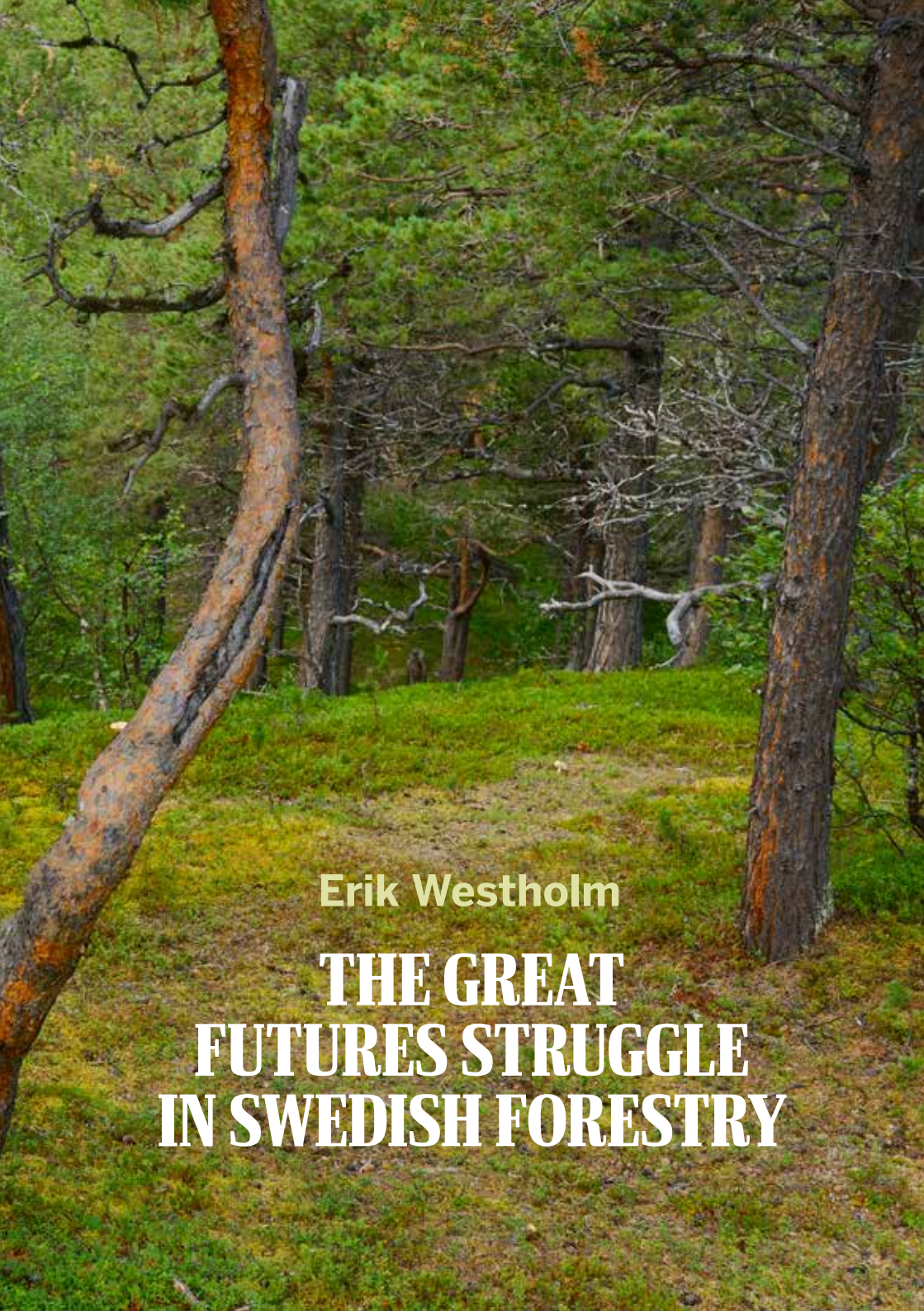
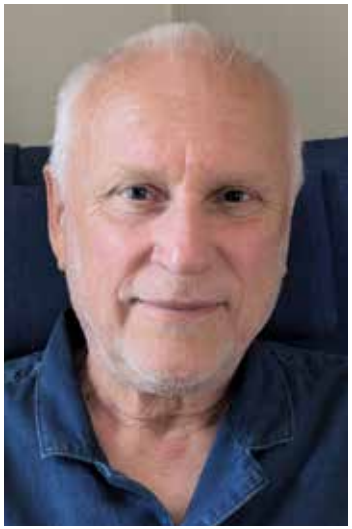


Erik Westholm

THE GREAT FUTURES STRUGGLE IN SWEDISH FORESTRY

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Foreword

Almost 70 per cent of Sweden's land area is natural forest landscape. Since ancient times, humans have used the forest for their livelihood and well-being. Each tree species had its own characteristics and could be used for everyday needs. People gathered firewood and timber in the forest, hunted for food and picked berries and mushrooms.

Also today, the forests play a vital role as a complementary environment to various lifestyles and sources of income. People in both urban and rural areas use the forest for recreation and outdoor activities and there are plenty of other benefits derived from the forest.

The forest is also home to an almost unimaginably rich variety of plant and animal life. The diversity is mind-boggling, with thousands of species interacting at every moment, far beyond our knowledge and ability to observe. They give the forest landscape its enormous vitality and enable us to use all the forest's resources.

However, over the last century the forested landscape has been increasingly dominated by industrial production. Forests are now harvested with a clear-cut mode of production which has transformed almost the entire forest landscape into a production site. Over decades export revenues from paper, pulp and timber played an important role for the expanding welfare state.

In recent years, climate change has made forest issues even more complicated. The forest itself is changing, plant and animal life facing new conditions, uncertainty concerning fires, storms and invasive species is spreading across the forest landscape. In addition, the forest is doomed to play a key role in climate politics since the forest carbon cycle is fundamentally important in the handling of the climate crisis. The management of Swedish forests has become matters far beyond national border.

My critical stance on what has happened to our forests over the past 80 years has come quite late in life. It was as a researcher that I first saw how the development of forests is driven by an overly shortsighted logic. We have tried to increase the usefulness of forests in a way that is devastating in the long term. I first saw glimpses of this in various research projects on rural areas and landscapes and in interviews when I participated in Swedish forest research, and it became very clear when I began to study how environmental research in Sweden actually works.

I'm also a forest owner myself. My own share is small, but part of a family estate with a lively knowledge exchange

about the forest that we manage. In everyday conversations, during workdays in the clearings, on excursions and in discussions at meetings, I started to re-evaluate my own views. We were steeped in views and knowledge that had once certainly been sensible, but which now prove to be inadequate.

This book contains two different personal stories. The first is my way of describing and relating to the force field in which the Swedish forest debate is taking place. Here, I rely mainly on my professional role. The other story is personal. It's more anecdotal and based on individual observations both at work and in my free time.

I'm a social scientist. My task at work has been to explore how societies function and how they change. As researchers we must be able to look at society on different temporal and spatial scales. We must identify which actors are important, what their interests are and how those interests affect political agendas. We must have a critical eye.

I'd like the book to be read both by those who already have a strong relationship with the forest landscape and by those who perhaps only see the forest in media or perhaps through the car window. Hopefully, the book will give the reader a better picture of Swedish forests and forestry.

I would be pleased for further communication with readers: erik.westholm@slu.se

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1 Swedish forestry in crisis

PHOTO MARCUS WESTBERG

Swedish forestry is in deep crisis. For 150 years the focus has been on increasing forest growth to bolster export revenues and create more jobs through the production of timber, paper and packaging. Any forestry that ensured the growth of new forests was called sustainable.

But in recent years other forest related transformations have fundamentally changed the conditions for the forest industry. Climate crisis and threats to biodiversity affects the forests directly as well as forest politics. Increased risk of fires, droughts, storms, and invasive species place forests and forestry into an essentially new political context. Forests become part of an intricate weave of concerns far beyond the growth of the forests themselves. These issues are global and must be addressed at all political levels, from individual forest owners with their small stands of forest to the agendas of national governments, the EU and the UN. The productivist agenda is clearly insufficient and will certainly be further challenged.

In Sweden up to now, transition to this broader agenda has been slow. Our forest industry and our forest policies have long defended yesterday's principles. In many ways, this is natural; Sweden is a country of forests and currently locked into patterns that only recently have proved to be unsustainable. The resistance to change is embedded in capital interests as well as knowledge, technologies, culture

and politics forming a strong authority able to resist transformation. This also means that Swedish forestry is now in a deep crisis.

During only a few years, Sweden's image as a model forestry nation for the rest of the world has fallen to pieces, both in Sweden and abroad. As recently as 2012, at the UN Rio20+ conference, Sweden proudly presented itself as a world leader in sustainable forestry: the Nordic Forestry Model. Today our stance is more defensive; Swedish forestry industry is fighting alongside the government to defend itself against both bark beetles, storms and EU policy. The message from Sweden is that we don't want to take responsibility, but that we'd rather be left alone and perhaps even oppose emerging international climate and environment policies where forest management is of key importance. Both in forestry industry and in forestry policy there is considerable resistance to change and signs of an increasing nationalism.

But this doesn't give the whole picture of forestry in Sweden today. In the Swedish media debate, there has been loud criticism of forestry practices and how they have changed the forest landscape. In recent years, criticism has also emerged within the forest industry itself. This can be seen in isolated initiatives from the industry, but there are also many forest owners, private owners in particular, that want to change their methods of forest management. Much

1. SWEDISH FORESTRY IN CRISIS

PHOTO MARCUS WESTBERG



How much is a reasonable amount in the bioeconomy?

of the discussion revolves around finding alternatives to clearcutting, that is, felling huge areas of forest all at once. A new openness to different ways of managing forests with further diversity, a greater variety of tree species and more mixed ages in the forest. It forms part of a search for a forestry that can combine the different values that the forest represents; it must be robust against various threats and yet provide significant climate benefits, while preserving cultural and social values. This is a response to the fact that forestry is now operating on a much larger scale than before. This book aims to provide an overview of the conflicting forces driving the ongoing transition.

Like other industries, Swedish forestry developed during the 20th century through mechanisation, specialisation and rationalisation. Clear-cutting was the prime form of production that could provide economies of scale and reduce costs and, over time, knowledge grew of how this forestry should be performed. How it was carried out varied considerably over the years. One common feature – from the end of the 19th century right up until the 1970s – was that the forest industry wanted to see more government involvement and regulation in forestry.[1] Here cooperation between the state and capital yielded significant welfare gains, just as it did in the expansion of the electricity grid, telephony and the defence industry.[2]

The Swedish state played different roles in the expansion of the forestry industry. The industry benefited from direct subsidies, such as for forest road building and energy supply, from tax policy and legislation, and perhaps above all from support for the development of a strong forestry knowledge system with investments in research, education, experimental activities, processing, consulting and standardisation. All »junk forests« were to be rooted out, and large drainage projects were launched to get rid of unproductive wetlands in order to increase productive forest area. Forestry machines became larger and more efficient, and fertilisers and herbicides such as Hormoslyr were used to increase growth. In company forests, aerial spraying was an effective tool during the 50s, 60s and 70s, until it was finally banned in 1984[3] following widespread protests from local environmental movements. The diversity of the Swedish forest was being combated using the same methods that the USA used during the Vietnam War to defoliate the landscape.

It's tempting to criticise the use of herbicides because it was such a spectacular madness.[4] But it forms an important part of the history of forestry in Sweden and that, as such, it reveals the roots of the approaches that dominate the forestry industry and forestry policy of today. The forest as an industrial production site.

Demands on how much Swedish forests should yield weren't determined by the natural growth of the forest, but rather by the industry's »perceived needs« and promises of jobs and export revenues. The capacity to process forest raw materials increased rapidly through the expansion of the pulp, paper and sawmill industries. At the end of the 1970s, the Swedish state's intervention in the industry was at its peak. At the same time, the forest industry's demands were so great that the Swedish forest simply couldn't keep up. So it happened that in a country dominated by forest landscape, the lack of forest became the big issue for the forest industry and for forest policy. What nature could offer was simply not enough.

At the time, there was much talk of timber shortages and scarcity, and nature itself was blamed for its slowness and inability to satisfy the industry's »needs«. This led to the formation of a forestry policy that lost sight of the forest as a biological system and an important part of our cultural heritage and rural life.

Strict laws made it illegal for landowners not to maximise their production. We ended up with a production forestry industry that was completely dominated by clear-cutting, where one (preferably refined) tree species was grown on each area, and the larger the clear-cut, the better. State forestry inspectors went around the forests and ordered forest owners to clear low-yield stands and replace them with productive regeneration. Forest owners were obliged to contribute to the increase in production. In practice, clear-cutting became the only forest management model permitted. It was a deliberate, gigantic transformation of the forest landscape into a production landscape.

All this was enshrined in the 1979 Forestry Act.[5] It regulated in detail how the forest should be managed, which tree species should be used on different types of land, and the obligations to clear and thin forest stands. The forestry industry was crying out for timber, and the state forced it to be produced.

This part of Swedish forest history is important if we are to understand why all the other values the forest represents have been forced out and made invisible in legislation and knowledge processes. Environmental considerations were just counterproductive in relation to the goals of forest policy. Over time, the production perspective became entrenched in all the institutions that make up the Swedish knowledge system on forests.[6] The forest became a cultivation system with clear-cutting as its main principle. Today, some 97 percent of Sweden's production forests are managed using this method, and the dominant value chain is based on industrial processing of wood based raw materials.[7] It may be worth remembering that forests account for 69 percent of Sweden's land area.

The forest as a habitat for humans, plants and animals was forced aside conceptually because it couldn't be reconciled with the industrialisation of forestry. For the same reason, knowledge about forest ecosystems formed only a short footnote at the end of forestry degree programmes.[8]

This view is central to understanding the strong defences that still exist in industry, in politics and in forest owner associations to continue devaluing environmental issues in forestry as a whole.[9]

2 Of course there were conflicts



PHOTO STAFFAN WIDSTRAND

But wait a minute – is it that simple? Is there no resistance to the heavy focus on increased volumes to harvest. The emergence of the environmental movement in the 1970s absolutely altered the national discourse on forestry in Sweden. People started to claim that clear-cutting was a path to ecological disaster. Public opinion rapidly gained speed and that meant political repercussions; herbicides and forest fertilisers were restricted, and the introduction of foreign tree species more restrained. The forestry industry was pressured to be more environmentally conscious, and industry representatives stopped drinking Hormoslyr herbicide on TV to prove how harmless it was. Ecological perspectives were weighed against social and economic values.[10] Also, the markets reacted and foreign buyers of Swedish forest products threatened to boycott Swedish timber because of the massive clear-cuts.

All this took place in a social climate where faith in future economic growth was tinged by futures anxiety, sceptical voices raised questions about the downsides of industrialism. The Club of Rome sparked the debate on the limits of growth, while the Brundtland Commission put forward the idea that continued growth must be combined with social and ecological sustainability. It was during the 1980s that the fundamental issue of modernisation in our time came forward: the escalating conflict between economic growth and the environment.

There was something else that also characterised the 1980s: growing criticism of strong state control and intervention. Neo-liberal trends opened the political path for a freer rein to capitalism. In forestry, this meant greater freedom for individual forest owners to strike their own balance between timber production and the environmental considerations that had just grown in importance. This led to a new Forestry Act in 1993, highly influenced by the public dialogues on the future that were held in the 1980s, a certain combination of optimism and concern for the future[11]. The new forest act established that protecting the environment was as important as timber production, but forest owners were given the freedom to interpret and implement the changes. The strong state stepped aside. For a time, there was relative peace in the Swedish forestry sector; the environmental movement and forestry critics had had their say, but the industry was delighted with the prospects opened by the motto »freedom with responsibility«.

The 1993 Forestry Act is still in force in Sweden, even though almost all the different forestry stakeholders are dissatisfied with it. It's provided 30 years of weak regulation, unclear legislation, forestry reports and white papers have been left unread in a drawer, and endless disputes about how the forest as a biological system can be protected when forest owners and the forestry industry have such free rein. The most important piece of legislation that we have on forestry doesn't address the climate crisis at all. We have seen a constant further struggle from the industry to avoid restrictions and to protect the banner of »freedom under responsibility«.

2. OF COURSE THERE WERE CONFLICTS

3 Forest industry loses control



PHOTO STAFFAN WIDSTRAND

Fifteen years ago, I interviewed a director at a large and relatively new paper mill. I was at the Institute for Futures Studies and explored the decision process around large industrial investments. What about their business intelligence and their knowledge about the context; competitors, politics risks etc. Ther answer was quite a surprise:

That's not at all difficult because the forest industry has relatively few plants; we keep track of our competitors, and basically everyone in the industry has the same advisor whose job it is to share just enough information about competitors' plans to prevent bad investments. And we know each other. We always build big and we always expect demand for forest products to increase in line with GDP, so it's important to have your new mill ready when the economy turns upwards and new contracts are signed. It's as simple as that.

I also interviewed other representatives of the forest industry around the same time. A picture emerged of an industry that had complete control over its own domain. Swedish governments have always been supportive of forest industry and allowed it to operate independently. It was evident how satisfied the industry was with the politicians' compliance. This was hardly surprising, as the Swedish forests have been the basis of much of the country's prosperity. Swedish forest

industry didn't need to worry too much about the outside world. On the contrary, it was conquering more and more of it through a huge expansion of forest production abroad, first in Portugal, then in South America and Asia.[12]

The days when forests and forestry were a world of their own are over now. The crisis for the climate and for biodiversity is penetrating any sector related to natural resources. Forests have been included in the UN's 2030 Agenda for Sustainable Development, consumers demand sustainable production, and inevitably forests have been increasingly covered by the EU's climate and environmental policy. The Swedish Meteorological Institute's website, spell out the challenges facing Swedish forestry. Forest growth itself is threatened by climate change: increased risk of fires, drought, root rot, storm damage and damage from spruce bark beetles and other insects.

The context in which forestry now operates demands skills very different from those the industry has managed with in the past. Geographically, the new agenda embraces the entire global forest system and places forestry right in the urgent timeframe of the climate crisis. The world's forests can play a significant role in either slowing down or accelerating both the climate crisis and the biodiversity crisis. Over a ten-year period, the EU has shaped a policy area to deal with these changes. Swedish forest industry and

Swedish forestry policy have distanced themselves though and defended the view that forestry must be a purely national issue that the EU shouldn't be concerned with. In these efforts, as we shall see, Sweden has developed its own description of how forests and climate are linked, one that aims to make it possible to continue to intensify timber production.

In several of the following sections, I will show how this, in turn, has created a gap between Swedish forest industry/forest policy and an increasingly unanimous research community on sustainable forest development. Most recently, here and there in the forest industry, there has also been a growing awareness that we are already in the midst of a necessary transition in forestry. Above all, it's become increasingly clear that a completely different understanding is needed The main idea of Swedish governments has been that the forest crisis is due to the EU interfering too much. In fact, the EU is actually just the harbinger of the entirely new situation.

Swedish forest industry is not only under pressure from a new geopolitical context. There's also growing doubt that we can keep on utilising forests at the level we have been used to in Sweden. Is there simply enough timber.[13] Are the forests deep enough to meet all the »needs«? The Swedish Forest Agency's scenarios indicate that the long period of

PHOTO LEIF ÖSTER



This is a representative stump from one of Sveaskog's more recent clearcuts. They logged pines that were around 50 years old – an age when their real value growth and climate benefit truly accelerate. This forest should have been allowed to grow for at least another 30 years.

increased harvesting is over and that scope for felling will decrease. In fact, this has already happened. Over the past 20 years, the age of felled trees in Sweden has decreased significantly.[14] Companies now regularly cut down 60-year-old spruce forests to get their timber. Private forestry is following suit and reducing the age of trees because of advice from companies and the Swedish Forest Agency. To get the same amount of timber as if the trees had been allowed to grow for another 20–30 years, ever larger areas now need to be felled. The National Forest Inventory is based on sample

3. FOREST INDUSTRY LOSES CONTROL

PHOTO GÖRAN LILJEBERG



The European spruce bark beetle – a 4 mm long representative of the risk society.

areas, but it has been questioned because it has limited coverage and resolution locally and doesn't provide sufficient information about volumes in individual stands, what is protected from harvesting, and what land is unproductive.[15] Above all, it doesn't capture the plans of individual forest owners since their forestry plans aren't made public.

We simply know too little, but there's no doubt that there's growing concern within the forestry industry about future timber supplies: »*The forest is finished!*« exclaimed the CEO of the Holmen company at a timber supply conference in 2019.[16] The forestry industry's research institute, Skogforsk, reached the conclusion that forestry must move towards felling younger and smaller trees. Once again, the forest industry's perceived »needs« are so great that nature can't keep up.[17] There seems to be a insatiable appetite to increase the productive capacity of forests through all kinds of intensification. Within forestry and in the trade press, there's also talk of a growing shortage of forests that have reached the minimum felling age.[18] In 2022, Sveaskog decided to reduce its harvesting by approximately 20 per cent.[19] The Swedish Church's re-evaluation of forestry is partly based on previous overharvesting; there just isn't enough forest left to maintain current harvesting volumes.

There is also a discussion in more detail about the fact that timber extraction, at least in southern Sweden, is now

higher than regrowth. This may be temporary, due to the rise in timber prices. The war in the Ukraine plays a role in that it reduces imports of timber to Europe from Russia, Belarus and the Ukraine itself. However, another explanation is that it's due to widespread bark beetle infestations. Damaged timber needs to be taken care of, and people want to prevent damage and secure their income. The bark beetle infestation is partly due to the extremely dry summer of 2018, but it is also undoubtedly linked to the Swedish forestry model, which has given large areas of spruce forest, a vulnerable monoculture sensitive to various kinds of problems. In recent years, we have seen devastating forest fires, and we're witnessing bark beetles chewing up the spruce forests. It's the bark beetles, among other factors, that are giving rise to uncertainty regarding the future of spruce in Sweden. They breed well during the hot and dry summers. In the southern half of Sweden, bark beetles are literally eating up confidence in the Swedish clear-cutting model. More and more forest owners are now turning away from uniform spruce plantations.

One way of describing this development is that the forestry industry that took shape in the 20th century has now entered the risk society – where optimism about the future has been replaced by anxiety, and where the issues that need to be addressed are complex and characterised by unpre-

dictability. The concept of risk has been used to capture the transition from an industrial society to a society that is increasingly preoccupied with mitigating negative consequences of industrialism.

The drivers for a major change in the management of Swedish forests are now assembled to a transformative power, indicating a system shift.[20] The forestry industry is being forced to respond to defend the productivist model. This, however, doesn't automatically mean that forestry will change. It's in a vortex of tension between everything that keeps forestry on its path of dependency and all the forces that point towards change. This is why we can say that Swedish forest industry experience a fundamental loss of control.

THE SWEDISH MODEL IN PLACE IN URUGUAY

Nordic forestry companies have established plantations across large parts of the world. Today, Stora Enso and the Finnish company UPM own 3.4 per cent of Uruguay's land area for growing cloned eucalyptus. The trees can reach a height of 30 metres after six years and produce five times more than a Swedish spruce forest can yield at most. In total, seven percent of Uruguay's land area is covered by plantations like these. This is controversial from an environmental perspective and has led to protests and conflicts of various kinds, perhaps primarily because it leads to water shortages in surrounding areas.

Go there and see for yourself, was the advice I got from Stora Enso's management; we also work with rural development. I did just that and was guided by Stora Enso's friendly staff on site:

»Here in the plantation, we want as little biodiversity as possible. We don't want any ground vegetation, preferably no insects in the plantation. A monoculture like this is very vulnerable.« So here, they are actively striving for an almost sterile environment, apart from the tree itself.

Stora Enso was also proud of its support for the community in the surrounding countryside. We met a group of sheep farmers who had been given a grant from Stora Enso for a fence. This was to keep the sheep on land where it was impossible to plant crops because the soil layer was too thin. It was rather pathetic to see the fence grant in relation to the enormous change that the plantations are bringing to the whole country. Perhaps we could call it »social washing«?

My understanding was that natural processes were seen as an enemy to the plantation project. I also met the Rainforest Movement, a network of environmental organisations and social movements that support small farmers and indigenous peoples in South America in their fight against large-scale plantations. They asked me to promise never again to call a planted area with only one species a forest. I haven't kept that promise, but it did contribute to my own increasingly critical attitude towards Swedish forestry.

Anyone who refers to a Swedish spruce plantation as a plantation will be excluded from the forestry debate. There are certain things that cannot be

PHOTO ERIK WESTHOLM



Fast-growing eucalyptus provides an immense landscape transformation.

PHOTO ERIK WESTHOLM



A contribution from the company toward a sheep fence is a rather poor compensation to local farmers.

said, and any comparisons with foreign plantations or endangered rainforests are taboo in the Swedish forest industry. There is logic and reason behind this; we don't have the same systematic desire to have only one species in our plantations. Our clear-cutting does pay some consideration to nature and implements some measures to preserve species diversity in wildlife. However, a successful spruce plantation has no ground vegetation, produces timber from only one tree species and maintains very limited species diversity. Forestry research in Sweden has long been interested in pushing forestry even further in this direction; SLU, the Swedish University of Agricultural Sciences, has experimental forests in Asa in Småland and Vindeln in Västerbotten, where you can see the scary landscape that these management models produce.



4 Critical environmental issues

PHOTO STAFFAN WIDSTRAND

One of the major points of contention in the current debate on forestry is the role of forests in the climate crisis. In this section I'll try to summarise the issue in a reasonably simple way. It's a complex field and I'll have to simplify some parts of it but I'll keep to the most recent research where conclusions are becoming clearer as more studies on the subject are published. In recent years, knowledge has grown faster than forestry stakeholders have been able or willing to grasp.

The climate benefit of forests lies in the fact that growing trees capture carbon dioxide from the atmosphere. Tree growth builds up reserves of stored carbon, not only in the trees themselves but also in the soil beneath them. As long as the trees remain standing, these carbon stores help to keep carbon dioxide levels in the atmosphere down. When trees are felled, they die of course and all their stored carbon is sooner or later converted into carbon dioxide in the atmosphere. If the trees are turned into bioenergy, fuel that is, the carbon dioxide is released into the atmosphere at once. For the parts of the trees that are turned into paper, cardboard and the likes, it takes a little longer for the carbon to break down, but it is still released into the atmosphere within a few years. The parts of the trees that are turned into timber for long-lasting products, such as buildings, can retain their carbon for a long time. If you build a house, you can expect the carbon to remain in the timber for a hundred

years. However, only a small proportion, perhaps 10–20 per cent of the stored carbon taken from the forest during felling, is turned into long-term wood products.[21] The rest quickly becomes carbon dioxide, which will take decades to rebind in growing forests. The time it takes to capture the same amount of carbon in new forests as was removed during logging has been called »carbon debt payback time« (Buchholz et al. 2016). This is the repayment period for the climate debt incurred during logging.

Biofuels are often described as carbon neutral and are also recorded as such in climate policy. The logic behind this is that it is still carbon that is part of a cycle in which vegetation binds the carbon back again. But when biofuels are burned, the carbon is immediately released into the atmosphere and contributes to climate change. compared to leaving the trees standing, you could say that burning them causes a bigger climate debt. If, instead of whole trees, we burn residues from logging or the forest industry's waste products, which would have decomposed within a few years anyway, the climate debt is reduced. They would decay even if they were left in the forest, but when they're removed and burned, it speeds up carbon emissions and can have a negative climate effect for decades.[22]

In order to maximise the climate benefits of forests, you therefore must maximise the amount of carbon stored, either in the growing trees and forest land or in long-lasting

PHOTO ERIK WESTHOLM



In the climate of the future: will cows have to walk on water?

wood products.[23] This is where forestry has a problem. After felling, it takes a generation of growing trees before the carbon is bound in biomass again. In plain language, this means that felling increases global warming over a 20–30-year period, which is the timeframe set by climate policy and the climate situation. The forest simply doesn't have time to reabsorb the carbon within the time limits set by the researchers' climate scenarios and the politicians' climate targets.

But, unfortunately, it's not quite that simple. Wood products can replace other materials that may be more harmful to the climate, such as buildings made of timber instead of steel or concrete. In this case, forestry operations provide climate benefits, known as substitution benefits. But even if this is considered, it's clear that in a 20-to-30-year perspective trees provide the greatest climate benefit if they're allowed to grow for as long as possible before being harvested.[24] The substitution benefit provided by forest products can't compensate for the negative climate impact of logging, especially in the short and medium term. In addition, packaging and advertising materials are produced that don't replace any oil at all but are simply unnecessary. This is climate impact we just don't need.

Markku Rummukainen, professor at the Centre for Environmental and Climate Science at Lund University, has

reviewed a large number of recent studies and concluded that even current logging levels can't be justified on climate grounds – they're already unsustainable in terms of climate change.[25] And increased logging would of course reduce the carbon sink even more. An increasingly unanimous climate research community tells us that logging must be reduced if climate targets are to be achieved.

This updated scientific knowledge isn't reflected in the Swedish government's forest policy though. In its 2024 annual report, the Climate Policy Council pointed out that nowhere in forestry policy is the climate issue addressed.[26] Swedish forestry policy is resisting a climate transition consistent with the conclusions of the research community. How should we understand this? Several other branches of industry are currently undergoing a rapid and radical transition towards reduced climate impact. The steel, concrete and plastics industries aim for major steps towards climate-neutral production. They are seeking growth on the new terms that the climate crisis must be considered. As we harvest less, climate-based changes in forestry will naturally result in a smaller supply of raw materials and slower direct economic growth. So, forest industry and forestry policy haven't yet found a business model that is both competitive and deals with the climate crisis in a reasonable way. The government's main line in this conflict is that Swedish

forestry must not be restricted. So instead, it's now shoring up its idea, formed 15–20 years ago, that high-intensity forestry is not a problem but the solution to the climate crisis.

In 2021, a report was published by a network of 108 of the world's central banks and other major financial players warning that the loss of biodiversity could have major economic consequences and pose a risk to global economic stability. It calls for mobilisation in defence of biodiversity. Alongside the role of forests in the climate crisis, this is the biggest issue in the debate on the future of forests. Current forestry practices just can't preserve the diversity of forest ecosystems.

In 2022, the countries of the world (188 in attendance) agreed on a new global framework and strategic plan to preserve biodiversity.[27]All countries that have signed and ratified it have committed to contributing to the joint effort to achieve the convention's goals. The goal is to reverse the negative trend and halt the extinction of animals and plants. This requires that 30 percent of the earth's surface be protected from exploitation. The reason for agreeing on such a radical policy could not be more urgent: our planet is now experiencing the fastest decline in living life since the time of the dinosaurs. The convention states that one million species of animals and plants are threatened with extinction, many within the next few decades. Yes, it's an inconceivable

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How much diversity does the eco-system require in a production forest?

number and the alarm bells are ringing loud and clear.

This also forms part of the EU's ambitions for forests. In some contexts, forests need to be protected completely from forest management. But protecting 30 percent is a difficult and contradictory goal. What does »protection from exploitation« mean? What human impact is acceptable on protected land? Is forestry even possible on that land? Can we carry on as normal on the remaining 70 percent? The question should be more about how much biodiversity can be preserved in production landscapes. How much biodiversity and ecosystem services should there be in production forests? This way of thinking leads to the necessary discussion of how policy should address the fact that different forest objectives require different management approaches. If we believe that forests have a number of different objectives to fulfil – for the climate, for biodiversity, for high-quality timber production, biomass, hunting, reindeer husbandry, berry and mushroom production, and not least for recreation in its various guises – then we need variation in forests and variations in forest management practices in the cultivated forest landscape as well. We need active forestry that supports biodiversity and all the other benefits the forest can provide. Species that need continuous tree cover over a long period of time must have alternatives to clear-cutting. All the biodiversity that isn't yet threatened can't be mana-

ged by a simple division between reserves and production forests. It must be preserved in the forest as a whole.

Assessments of environmental objectives and reports on Sweden's implementation of its Species and Habitats Directive show that important habitats for forest-dwelling species are declining in both area and quality.[28] The forest landscape is fragmented and rapidly changing. The Swedish Environmental Protection Agency says that powerful measures are needed to halt the decline in Sweden: *The most urgent threats to biodiversity, such as the loss of forests with high natural values as continuous forests, need to be countered almost immediately, while a transition to forestry adapted to biodiversity can probably be managed gradually. To halt the loss of biodiversity in production forests, policy instruments are needed that can consider variations in the landscape. Logging as in current forest management has a major negative impact on more than 1,400 species.*[29]

The problem they point at here is caused using homogeneous, production-oriented forestry with standardised methods of felling and forest management in landscapes with varying biological content. If we're to stop this loss of biodiversity, forestry needs to be better adapted more to the site-specific and natural conditions for biodiversity. This adjustment spans the entire spectrum of management methods; it also means that, in certain places, forest areas

with high natural values and forests that have never been harvested be left untouched. This is what the Swedish Environmental Protection Agency says, based on available research.

To preserve biodiversity in the forest landscape as a whole, it's not only necessary to protect specific areas, but we also need to adopt an environmentally conscious approach to commercial forestry. Although this has been the prevailing forestry and environmental policy for more than 30 years, nothing much has happened. What is needed is more dead wood, more leaves, more older trees in managed forests, and more variation in management. In other words, a discussion about all the different values forests represent. This is precisely what the discussion on biodiversity should be about – preserving and utilising diversity throughout the entire forest landscape.

5 What does the EU want with forests?



PHOTO STAFFAN WIDSTRAND

This brings us back to the EU policy that has been irritating the Swedish forestry industry so badly. In recent years, the EU has developed a policy area for sustainable development that includes a range of different »green« environmental issues. It might be said that the EU has tried to take a comprehensive approach to energy, environmental and climate issues, and this of course also affects forest management. There is a forest strategy, a biodiversity strategy and efforts to define which investments should be seen as sustainable and eligible for various forms of support. This is known as the EU Taxonomy. The intention has been to steer investments towards climate benefits and climate adaptation, the protection of biodiversity and the reduction of various types of pollution, among other goals. These different approaches have gradually been tied together in what is commonly referred to as the EU Climate Law, Fit for 55, which is binding on member states. The Climate Law stipulates that the EU's climate impact must be reduced by at least 55 per cent by 2030 and greenhouse gas emissions to net zero by 2050. Sweden has endorsed the overall legislation for its implementation.

The regulation that affects forestry most is the statutory LULUCF Regulation (Land Use, Land Use Change and Forestry). It stipulates that member states must increase carbon stocks in forests and land, as well as in wood products.

It provides Sweden with a benchmark for what needs to be achieved and means that the state will probably have to introduce new rules and incentives. Among other things, the regulation stipulates that:

- stocks of stored carbon in forests and other land must increase, as must living and dead wood in the landscape – drained wetlands must be rewetted.
- the use of timber must be directed more towards long-lasting products, primarily buildings.
- the burning of wood raw materials must be reduced.

These measures have met with strong reactions in the Swedish forest sector and in the government stating that EU is poking its nose too far into Swedish forestry. However, the new context for forest policy can open up opportunities for new revenue and that these measures, at low or no extra cost, could also contribute to strengthening the biological values of the forest landscape.[30] This is evident not least from the emergence of a private market for carbon credits. Companies offer forest owners payment for measures that sequester more carbon or increase biodiversity.[31] The business idea here is to sell the environmental value of these measures to companies that are willing to pay for climate compensation or for forestry that is more focused on biodiversity. These may be companies in completely different

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Sweden is a reluctant partner in the EU's nature restoration efforts, keeping up tight domestic constraints.

industries that use this to ›pay‹ for their own climate-impacting activities. This goes to show that there really is a growing interest in sustainable forestry – and a readiness to pay for it.

If the carbon credit system is developed further within the EU and in Sweden, it could become an alternative source of incomegiving forest owners the opportunity to both earn money and preserve more of their forest. Work is underway within the EU to create certified carbon credits, that is, systems that ensure that the promised climate effect becomes a reality and that there are common rules for the entire carbon credit market. Systems like these, that have often been financed by the World Bank, for instance, have been a central part of efforts to stop deforestation in Africa and South America. They're controversial because it's difficult to guarantee that they result in effective carbon sequestration in the long term.[32] How can we know that the change will be permanent once the money has been paid out? How can we ensure that it's a change that wouldn't have happened anyway or been taken elsewhere? What happens if the forest burns down? Could this result in those paying for climate compensation not reducing their own climate impact? These critical questions suggest that carbon credit systems must be strictly regulated and controlled.

The EU's work on certified carbon credits has met with interest from forest owners but considerable scepticism

from the forestry industry – paying forest owners to preserve their forest could lead to a reduction in logging. In Sweden, forest industry is arguing that carbon credits will limit forestry. Apparently, forest owners and forest industry have increasingly divergent interests.

Within the EU framework, an alternative to reduced logging could be to achieve the same climate benefits by significantly reducing sales of fossil fuels through higher petrol and diesel prices. Without this kind of dramatic change, it's difficult to see how Sweden could avoid ending up in a situation where we violate both the binding annual targets for greenhouse gas emissions for the period 2021– 2030 and the LULUCF Regulation. It's still unclear what Sweden's policy strategy is on these issues. Sweden has formally approved the regulation by supporting the Climate Act, but both government and forest industry have distanced themselves from it in various contexts and have also actively opposed it.[33,34] It also contrasts with the Swedish forest industry's demands for more timber.

In 2024, the European Parliament and the Council of Ministers adopted a regulation with binding targets for the restoration of ecosystems, habitats and species, with interim targets for 2030, 2040 and 2050. The background to this is that over 80 per cent of Europe's habitats for plants and animals are in poor condition. According to the Council

of Ministers, the regulation is a »crucial step to avoid ecosystem collapse.« The Swedish government initially participated in work on the regulation but then opposed it and voted against it. All in all, Sweden has become a veritable hindrance to the EU's pro-environmental work.[35]

One argument that forest industry often uses against the EU:s increasing influence over Swedish forestry is that conditions in different countries differ so much: Sweden is special, only Swedes know what's best for Sweden. However, it's also worth noting that for decades, Swedish forestry performed an international role model. Swedish interests have been in place in about 50 different countries around the world, often with support of Swedish international development funds, to teach them how to chop down natural forests and plant monocultures, all in accordance with the Swedish model. This is also the case in the extensive plantation forestry that Nordic forestry companies have established in many parts of the world. When Swedish forestry is active around the world, it is hardly their local conditions, knowledge and traditions that determine the direction of development. Ethnocentrism is deeply rooted in Swedish forestry.

Another question rarely discussed in Sweden is how protected we are, with or without a strong EU, against foreign companies buying into the Swedish forestry industry and

implementing their own model of forestry? Could Swedish forestry companies become Chinese, as has happened with the automotive industry and wind power? How will the old familiar motto of »freedom with responsibility« sound if decisions about Swedish forestry are being made on the other side of the world? Wouldn't we wish that instead of »freedom with responsibility« we had a democratically based regulatory framework that everyone had to adhere to? The fact is that a large part of Swedish forest industry is already foreign owned.[36]



6 Forest industry is fighting back

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Compared to the EU, Swedish forest industry has taken a different view of what is needed in Swedish forests. In 2023, the CEO of forestry company SCA approached the government with a suggested agenda for Swedish forest policy.[37] The letter cover the main issues that the forest industry have been lobbying for during several years.:

- they want policy to be geared towards increased timber growth, increased harvesting of raw materials and more so-called »freedom under responsibility«.
- they see logging generally as climate-smart. The more timber harvested, the greater the climate benefit.
- they oppose the protection of more forest land from management.
- they want the government to limit the possibilities for appealing against logging notifications.
- they want the government to review national conservation regulations that may hinder logging.
- they have no concrete proposals regarding the preservation of biodiversity.

The Swedish Forest Industries Federation takes a broader approach. In its Future Agenda, it makes far-reaching promises about increased climate benefits, circularity and increased biodiversity.[38] It's a hopeful agenda because it places forestry in its wider context. It's not aimed to be fulfilled

until 2040 though, and there's no roadmap or interim targets for achieving the goals. So, it doesn't really make any demands at all for changing current forest management.

The forest industry's agenda also has unresolved issues in relation to the latest research. The starting point is that the forest's ability to bind carbon is attributed to forest industry rather than to nature. The existing carbon stock is suggested to have been produced by the industry through increasingly intensive forestry over the last century. However, the forest being compared with of a century ago was heavily depleted by forest grazing and by agricultural land spreading over larger areas because of strong population growth. Since the 1950s, agricultural land has instead decreased by more than a million hectares. In addition, nitrogen deposition and increased carbon dioxide levels in the air, combined with higher temperatures and longer growing seasons, have increased forest growth over several decades, right up until the last few years. A significant part of the increased carbon stock is therefore due to factors unrelated to forestry. We don't know how large the carbon stock would have been if the forests had been allowed to grow freely for 100 years.

The idea that forest industry has created the carbon stock is used to argue for even more intensive forestry – the more timber you fell, the better it is for the climate. This, in turn, assumes that climate benefits will be achieved through substitution, that is that forest products will replace fossil ma-

terials in packaging and buildings. But to be able to achieve this, you must establish a packaging industry that will allow the material to be circulated/recycled for several decades.

This is a huge step that the forest industry agenda doesn't address at all. When it comes to buildings, it's estimated that 300 million new buildings will be needed worldwide over the next 30 years. This suggests that the aim is to significantly increase timber harvesting to deliver greater climate benefits. Given the low proportion of timber that is stored in buildings, this means a significant increase in logging. So, forestry needs to be able to supply a lot more timber. As we've seen, there's already widespread concern in the industry, among expert authorities and in the research community about whether current levels of timber harvesting can continue. In addition, there are worrying signs that forest growth has declined in recent years, unclear why. Nor is it clear how biodiversity in the forest can increase at the same time as these plans for increased logging and timber production are being realised.

Taken together, the documents and statements from the Swedish forest industry call on the government to pave the way for even more production-oriented forestry. This is following a path that forestry research has been critical of for a long time: the »more-of-everything« idea, that there is no contradiction at all between, on the one hand, high-intensity use of natural resources and, on the other, the forest as a

functioning ecological and social system.[39,40] Here, it seems, forest industry is well and truly stuck in its own 20th century history, with no limits to growth.

What's the government's response to the forest industry's wish list? In its directives for a new forestry inquiry, the government meets the demands of the industry on almost every point.[41] The directives make it clear that increased forest production is the order of the day in Swedish politics:

»[...] the conditions for increased forest production and sustainable forest growth throughout the country should not be negatively affected.« Economic sustainability is paramount. The »climate logic« of the government is as problematical as that of industry. It says nothing about how to increase carbon storage to contribute to the EU's climate goals. The government wants to strengthen the individual forest owner's ability to make decisions about their forest in several ways. It aims to leave more environmental supervision to what is known as self-monitoring, i.e. the forest owners themselves assessing their pro-environmental efforts. Clear-cutting up to five hectares should be allowed without it even being reported. The directives also propose limiting the possibilities for associations and individuals to appeal decisions on forestry. They tone down the requirement for consultation in connection with logging. In addition, the government states that although forest owners are the ones that know most about the forest, knowledge requi-

rements must not be disproportionately high. The directives also stipulate that it will be necessary to actively influence the EU to protect national forest policy. If we look at how Swedish governments have worked in recent years, this amounts to slowing down the EU's climate work.

The government's directives for the forestry inquiry are unusual in that they spell out, point by point, what conclusions the inquiry is expected to come to. There's very little curiosity here, no thirst for knowledge; it's a kind of direct policy that skips current scientific findings and knowledge development. There's no concern for the forest environment, very little trace of the risks warned of by the Swedish Met Office (SMHI). These are issues that are just pushed aside when forest policy is so heavily influenced by the idea of a growing bioeconomy.[42]

The forest is a much-studied area of Swedish politics. A review of the political programmes of the governing parties Moderates, Christian Democrats and Liberals (with the support of far-right Sweden Democrats) shows that these parties are generally satisfied with current Swedish forestry practices. They don't aim to introduce measures to increase the proportion of clear-cut forestry, they have no increased requirements for long-term environmental considerations, and they don't want regulations to steer away from the continued intensification of forestry. The Moderates and Sweden Democrats also don't want to strengthen the pro-



PHOTO MARCUS WESTBERG

»We must be allowed to use the forest!« This is a standard outcry from the forest industry, indicating that there are strong powers objecting to this. However, all political parties and the major environmental NGOs are favorably to sustainable forestry. There is really no resistance to this.

tection of endangered species as in the Species Protection Inquiry's proposal. They believe the rights and freedom of forest owners to decide for themselves how to manage their forests should be paramount and want to limit the EU's influence over Swedish forestry. These parties, currently in power, are remarkably unanimous on forestry issues and represent the traditional Swedish view of the forest as a production system that should be maximised. So, it is expected their government will deliver freedom for forestry, perhaps with further cuts to the environmental budget and environmental regulations. Both the County Administrative Boards, the Swedish Forest Agency and the Swedish Environmental Protection Agency have already suffered cuts that obstruct their capacity to ensure compliance with the law. The Social Democrats have a similar attitude and, in recent years in government, have worked hard to ensure that Swedish-forest industry won't be »hit« by »control« from the EU. The Centre Party has primarily worked to promote strong property rights.

The expression that has become common in politics to defend increased logging is that »we must be allowed to use the forest«. This is a tale that give the impression that powerful forces are threatening to put an end to Swedish forest industry. It also reinforces the simplistic view that there is only one choice, that between nature reserves and clear-cutting. In this way, forestry policy protects itself from

having to develop forest management models that can function in the new forestry landscape. This means that most Swedish MEPs want the environmental perspective on Europe's forests to stay as it is – marginal. Only the Left Party and the Green Party emphasise the ecosystem perspective.

The extreme productivist approach to forests and forestry has its roots in a time when the economic development of agriculture and forestry was of central importance to the development of the welfare state. The forest industry is still significant and important, especially in areas where there are paper- and sawmills. The Swedish Forest Agency reports 30,000 people employed in forestry itself and 56,000 in forest industry.[43] This is slightly more than one percent of total employment in Sweden. However, the size of the forest industry is often debated, and significantly higher figures are cited within the industry and in forestry policy. The industry organisation Swedish Forest Industries states 140,000, without explaining the discrepancy with Statistics Sweden's and the Swedish Forest Agency's figures.

This is the figure that's also used by politicians. Most of the actual work in Swedish forests is carried out by temporary foreign labour from low-wage countries. An interview study with the ten largest forest management companies, that is, those that carry out clearing and planting in the forest, showed that only three per cent of the workforce was Swedish. In recent years, forestry companies have also

brought in foreign workers to operate forestry machinery for logging.[44] It seems as if Swedish forest industry is *a medium-sized dog with a big dog attitude*.

In 2015, an organisation called Svensk Skogskommunikation (Swedish Forest Communication) was formed by Swedish Forest Industries together with the state-owned forestry company Sveaskog to convey the image of active forestry as climate-smart.[45] Tens of millions of Swedish kronor were invested in messages about how many trees are planted, but nothing about how many trees grow to maturity or are felled, nor are the problems of increasing species poverty in the forest addressed. The information campaign covered posters on local transport, TV commercials, newspaper advertisements and films featuring scientists from the industry's Forest Research Institute of Sweden, Skogforsk.[46]

Advertising campaigns are now outdated as a way of winning the public. We know from other industries, such as the tobacco and fossil fuel industries, that when an industry resorts to massive advertising campaigns to defend its existence against criticism, it's often already too late.[47] By then, the industry has sensed the scale of the problem but hasn't been able to get organised to solve it.



7 The struggle over knowledge

PHOTO MARCUS WESTBERG

The politics of forest futures offer many intricate tradeoffs to be made. Forests can provide us with the paper and timber products, they are part of our cultural heritage, they provide us with recreation and health, and they are a biological system essential to our survival. The knowledge production is a key issue; the knowledge we chose to produce or not produce is key to the management of forests. Forestry research in Sweden has been carried out mainly at the Swedish University of Agricultural Sciences (SLU). The university rate high in international rankings and the expertise spans a wide range of fields related to natural resource management. It's a researchoriented university with departments covering virtually all subjects needed for agricultural and forestry production. It has its roots in education and advisory services aimed at making agriculture more efficient and helping to develop the industry. SLU is controlled by the Ministry of Enterprise and Innovation, while other universities that develop knowledge about other parts of society are under the Ministry of Education. Knowledge about forests and forestry has developed in close proximity to both the forestry industry and to politics. Neither the governing right-wing coalition parties nor the Social Democrats want to let SLU and forestry research slip out of their grasp.[48] Academic knowledge production in Sweden is organised to ensure that the focus remains on production.

Over the past 50–70 years, we've been prioritising forestry knowledge specifically related to timber production. To put it bluntly, the forestry industry has sought answers to the question of how to get more trees to grow faster at a lower cost. SLU has been virtually the sole provider of forestry education, such as forestry and forest management programmes.

For four years, from 2009 to 2012, I was one of the project managers in the Future Forests research programme, which was funded by large parts of the Swedish forestry industry in collaboration with the state via the Mistra research foundation. I was employed by the SLU. Future Forests was by far the largest forestry research programme Sweden had ever had, with an initial budget of SEK 150 million. It was an interdisciplinary injection of forestry knowledge and involved many researchers from different disciplines. However, the knowledge that was subsequently filtered out by the programme's management for continued communication to politicians and the general public was what the forestry industry had been after from the outset: intensive forestry with clear-cutting is the only sensible approach and in fact the only one possible. The forest is a timber production system, not a diverse ecosystem.

In 2012, journalist Maciej Zaremba wrote a series of widely read articles in Sweden's biggest daily, *Dagens Nyheter*, criticising Swedish forestry. I was then contacted by

PHOTO STAFFAN WIDSTRAND



»Uncomfortable« knowledge, such as knowledge of biodiversity loss, has been systematically marginalized leading to a poor understanding of the forest eco-system.

the Swedish Forest Owners' Association, which argued that researchers receiving funding from the forestry industry have a responsibility to defend the industry against attacks from »outside«. There were many within forest industry who felt that the university and the research program had a responsibility to defend our financier and that the academic legitimacy was highly important. Fifteen of my colleagues did the job and defended the forestry industry in Dagens Nyheter. Zaremba expresses his indignation about this in

his new book.[49] It's all about power over the production of knowledge, how the industry gained a virtual monopoly on determining what education and research was needed in relation to Swedish forests. This proximity between industry and research has become increasingly problematic as forestry issues have become more interdisciplinary and increasingly global. The future of forests is a political issue, and forestry companies are actors in a broader political context.

In our book *Slaget om Framtiden* (The futures struggle – the role of research in the conflict between economic growth and environmental protection), economic historian Jenny Andersson and I pointed out that Future Forests program was not to explore various forest futures.[50] Our study was based on archive research and interviews and showed how the programme's content was developed for the first four-year period, 2009–2012. The financiers had a built-in agenda – the programme was intended to deliver public and political support for increased timber production. They sought to establish a consensus, a rallying cry around what the forest industry does. They were tired of forest biologists (including those at the SLU) and the environmental movement. A research programme was created in which the industry itself could set the agenda and decide which issues were relevant to explore and highlight. The most important issue at the time was what was called »The forest in the service of climate change«. The aim was to establish the

idea that the more trees are felled, the better it is for the climate. Not everyone involved in formulating this idea even believed in climate change at the time.

The story of Future Forests is part of a larger narrative on how urgent knowledge about forest ecosystems and forest management has lost ground. Ties to the forestry industry are traditionally strong, and almost everyone in a leading position in the forestry industry has been a forester, all educated at the same university. Within the social sciences, there is one field, Science, Technology and Society, STS, which examines how certain knowledge gains significant influence while other (disconcerting) knowledge is brushed aside and loses status.[51] If the knowledge that is left aside is relevant, this can lead to a situation where, over time, system understanding is decreasing over time.[52] Ultimately, this results in the active production of ignorance, non-knowledge. This has happened in forestry research, where large sums of money have been spent on studies focusing on increased production through clear-cutting, while almost no money has been spent on research into the problems created by this type of forestry or on alternative ways of managing and using the forest. This is not surprising, as large parts of the forestry industry believe it's entirely natural to use their money to control research, preferably with the state as a co-financier. But when forestry CEOs say, »it's better for us if universities make our case than if we do it ourselves,« then

7. THE STRUGGLE OVER KNOWLEDGE

PHOTO ELIN MAGNUSSON



Forestry research must be open to the unexpected.

there's a serious problem. And this is a view I've encountered both in interviews and at seminars. Then collaboration has gone way beyond the limit of what is reasonable. This is »science washing«.

The case of Future Forests suggests that by contributing to the emergence of dominant future images, environmental research is entangled with a process of gradual consensus creation around what may be highly selective or biased narratives of the long term, which may conceal or postpone key forms of future conflict.

The context for forestry and forest politics has been hastily changing through the development of the climate and biodiversity crisis and the globalisation of politics. The level of conflict between actors, interests and incentives has surged over the last few years. Obviously, society is not a collective »we« that chooses the future; there are winners and losers related to different solutions. One of the important tasks of research is to examine critically the processes and motivations of different actors. The risk society, with its uncertainties and challenges, places increased demands on reflexivity, on an interaction between science and society that is genuinely open to different outcomes. This means there must be universities that aren't tied to one specific industry or set of interests. The research community must primarily define what constitutes relevant research questions and how these should be answered. However, when it comes

to Swedish forests, this development has been hindered by the expectation that universities should also act as a voice for the forest industry with its specific interests and time perspective.

The current situation requires a broader spectrum of knowledge on forests than currently exists in Swedish forestry. Today's timber buyers, the people compiling forestry plans, forestry CEO's, forest company board members, those who write about forests, and people in the organisations concerned with forestry all have a lot but incomplete knowledge about forests. When it comes to the climate threat, everyone is a beginner. In its evaluation, the Swedish Environmental Protection Agency shows that knowledge of methods that can maximise both production and biodiversity is currently very low in forestry.[53]

There is, of course, a high level of awareness of this within SLU, and both education and research have been broadened to meet the need for knowledge in wider fields. They've also thought it urgent to restructure the forestry degree programme into a broader forest science programme to attract students at all. Practising foresters are also raising demands for a broader scope of knowledge in graduates.

In 2023, I received a sad email from a senior lecturer at the Faculty of Forest Sciences at SLU, where the forestry programme has been run: *»It is incredibly strange that we haven't had any serious research into alternative forest ma-*

PHOTO HELENA WESTHOLM



The last few years, forestry research in Sweden has broadened slightly to meet the new challenges.

nagement for so many years.I also get a lot of questions from former students who now work in forest companies, forest owner associations or at the Forest Agency about »alternative« forest management that prioritises nature conservation or a varied forest without clear-cutting. SLU (and especially the department that I work in) has no credible answers to give – simply because we've never done any research on it. Completely incomprehensible!«

Forestry research in Sweden has slowly broadened to meet the new situation. This has been carried out within SLU. Forest education and research have also emerged at other universities, such as Linnaeus University. In 2022, the Swedish Research Council Formas allocated 120 million kronor to the programme »New forms of forest management for multiple societal goals«, with a number of projects. The call for proposals sought examples of different forms of adapted forestry methods, such as continuous cover forestry or clear-cutting-free forestry, including variants of selective cutting and shelterwood forestry, selective cutting with a significantly extended rotation period, and forestry with a higher proportion of deciduous trees.

In 2024, the Knut and Alice Wallenberg Foundation granted SLU 272 million kronor for scientific research on forestry. Here, the grant is based on the premise that biodiversity must be seen an integral part of all forestry, as vital and well-functioning ecosystems are a fundamental prere-

quisite for all long-term activities and for life in the forest.

These new initiatives are signs that the forestry hegemony is beginning to break down and give way to more pluralism in the development of knowledge about the forest. I'll get back to this issue later in the book.

The knowledge that forest owners should or should not have is a delicate issue and often causing conflicts in forestry. At the end of 2022, 9 percent of Sweden's total forest land was formally protected from forestry. More than half (61 percent) of the protected land is located in the mountainous areas where forest growth is slow and distances to forest industries are huge. In the forested land where productive forestry is possible, 6 percent is formally protected.[54] In Götaland and Svealand, the southern third of Sweden, the proportion of forested land protected from forestry in nature reserves, national parks and nature conservation areas is less than 3 percent. This is a disturbingly low figure in international comparisons and in view of Sweden's commitments under international agreements.

Protection can be based on the Species Protection Ordinance or various rules of consideration, or because there are key biotopes, i.e. sensitive environments that certified forest owners receive extra payment to preserve. But who needs to know about these environmental values and who is responsible for defending them? This is a complex issue but necessary to touch on to understand the enlarged agenda for forest politics. It could have been sufficient to know that the Swedish Environmental Code lays down that, *everyone engaged in an activity must acquire the knowledge necessary [...] to protect human health and the environment from harm or nuisance.* The Forestry Act, however, modifies this requirement in the Environmental Code and gives forest owners a great deal of leeway. This is called »freedom under responsibility« and in practice has come to mean that forest owners preferably shouldn't be forced to anything – and especially not to exempt forests from forest production.

The directives in any governmental commissions related to forestry normally state that there must be no proposals that restrict private property rights. In fact, property rights have an extremely strong position in forest politics in Sweden. [55] The latest forestry bill states that forestry in general, and nature conservation in forestry in particular, should be based primarily on voluntary action on the part of the landowner. Landowners should be able to control forest management themselves and thereby also how they're going to protect the important natural values. [56]

In the preparatory work for the Forestry Act, it says that forest owners must report natural and cultural heritage values in their felling notifications. This obligation, however, has for decades extended no further than the forest owner's own knowledge. In practice, therefore, forest owners weren't obliged to know or learn anything to defend

their freedom under responsibility. Nor has there been a requirement that the considerations the landowners set out in the felling notification fully correspond to what they do in practice.

With the overdue implementation of EU legislation, the concept of freedom under responsibility is rapidly becoming outdated. Environmental organisations have pursued hundreds of court appeals in the last five years, based on the fact that mandatory EU legislation stemming from the Birds and Habitats Directives had not been implemented properly in Sweden. At the beginning of 2026 the Land and Environmental Court of Appeal ruled that actors who want to clear cut a forest must present a proper investigation to the authorities. Furthermore, the authorities must investigate thoroughly, taking a wider perspective into account. Their decision must be motivated based on different species' conservation status and the impact of the planned logging on the so called »continuous ecological functionality« for the species involved. In theory this means the Forestry Act has become much less relevant, while EU legislation through the Environmental Code, has gained importance. In practice, forestry companies stick to the concept of freedom under responsibility and widely ignore the (binding) court rulings, leading to hundreds more court appeals during the first half of 2026 alone.

While the recent court rulings are a victory for environmental organisations, the last word has not been spoken. Attempts are being made to re-instate the Forestry Act by severing the ties to the Environmental Code and heavy lobbying on EU level aims at weakening the Birds and Habitats Directives. At the same time the Nature Restoration Regulation is looming around the corner, having the potential to completely reshape the forestry sector.

The issue of knowledge is central to the development of forestry. In my various roles at SLU, I've conducted interviews and held discussions with key figures in the forest industry and with forest owners. Many forest owners have a deep love for natural assets and values in their forests, others disgrace any measure related to protection. It is striking how ignorant many forest owners are about the broader values of their own forests. The value of forests is often based on myths or ideas that are hardly relevant in the current situation. How many people actually know why forest biologists warn against clear-cutting as the dominant production model? For a long time, the Swedish Farmers' Union (LRF) and forest owner associations have been emphasising that private property rights must be strong since individual forest owners are the ones know the best what they have on their land.[57] In the consultation responses and in debates, they've often resisted the idea that forest owners should

both be obliged to have knowledge of environmental values and to report on them.

The inquiries that have been held to lay down who in fact is responsible for the knowledge requirement and what it should cover generally turn out to be unclear and difficult to interpret. The same applies to the consultation responses. This is partly because the conditions being regulated are complex in themselves. However, they clearly display the contradiction in the assignment itself. Yes, it was important to emphasise environmental considerations in the forest, but it was also important to make sure they have no major impact on timber production. On the other hand, perhaps it doesn't matter so much what is reported or concealed or who is responsible. According to the Public Prosecutor's Office, in the last 30 years there hasn't been a single conviction for violating the Environmental Code or the Forestry Act in forestry operations.[58] And yet, in the same period there have been somewhere around 1.8 million felling operations.

When the EU criticised Sweden's legal system regarding nature conservation in 2021, the Swedish Forest Agency admitted that it had ignored Swedish environmental law for decades and, against its better judgement, allowed the felling of forests that should have been protected. It felt, however, compelled to do so due to »political signals«. Could this really have happened in a state ruled by law? Well, read this sombre confession:

The Swedish Forest Agency's view that there is no political scope to apply the legal options available under existing legislation means that forests with high natural values continue to be felled. When remnants of natural forest and other forests with natural values linked to long continuity are felled, this has a serious negative impact on biodiversity, significantly limiting Sweden's ability to preserve biodiversity, achieve environmental quality objectives and meet international commitments. The fact that an authority applies current legislation restrictively for political reasons can also be problematised in general from an administrative law perspective. It is also unclear whether continued such action is compatible with a society based on the rule of law and in a democracy. [59]

This is what the authority says about itself. As an extra safeguard, the state, through the courts and the Forestry Agency, has concluded that it isn' t possible to demand such a high level of consideration for nature if this would *significantly impede ongoing land use*.[60] All cultivated forest – that is, any forest that has ever been cultivated – has been counted as »ongoing land use« that mustn't be disturbed too much by environmental considerations. Hey presto! The Forestry Act prescribe: production and the environment should be given equal weight. It's difficult to imagine any other industry being protected from environmental policy on the grounds that the activity is already underway!



PHOTO MICHAEL LANDER

Look here, creeping lady's-tresses! This orchid is on the Swedish Species Information Centre's (Artdatabanken) red list of threatened species. It is frequently at the center of the forestry debate because, while relatively widespread, its numbers are declining rapidly. It is considered an indicator species for a healthy ecosystem with other ecological values, such as conservation-worthy lichens, mosses, and fungi. The defense of the creeping lady's-tresses has become a symbolic issue in the battle over Swedish species protection. This is partly because the Land and Environment Court of Appeal has taken species protection seriously regarding this particular orchid. The government has now more or less erased the protection for the orchid.

In his book, Zaremba points out the absurdity that it is strictly forbidden to pick rare species on your walk in the forest, but they can all be massacred by a forest harvester within the rule of law. »If you're not allowed to drive when drunk, does that apply when you're driving a lorry?« he asks rhetorically.

In Arjeplog, which has three times as many lakes as inhabitants, coastal protection laws prevent anyone from building a cottage by a lakeside. But the forestry industry can clear-cut the entire surrounding area, right down to the lake shore, without the state raising any objections. These are just a few examples of the preferential treatment that forestry gets in terms of Swedish legislation and interpretation of the law. Compared to other industries and human activities, there is a remarkable lack of effective regulation of forestry.

Part of this system of fake-environmental concern are the forestry plans used by private forest owners. The timber buyers – for example a forest industry company or a forest owners' association, such as Mellanskog – are often the ones who draw up the forest management plan for the landowner. This is usually based on the age of the forest stands, the type of forest land and other conditions. The forestry plan then forms the basis for forestry decisions, such as when stands should be cleared, thinned or finally harvested.[61] The plan doesn't usually include inventories of the

forest environment, nor does it provide information about rare or important forest-dwelling species or assessments of the impact of felling on forest biology. This means that forest owners could very well have purchased an expensive forest management plan without knowing the high natural and cultural values of their property. Nor are you required to report species occurrence when submitting a felling notification. This creates many of the problems that the media describe as »felling stops« when the County Administrative Boards become aware of the situation once felling has already begun. [62]

The forestry plan generally formulates the measures to be taken as if there were no species protection at all. Sweden's biggest daily, Dagens Nyheter even showed how Mellanskog recommended that forest owners with the rare orchid Goodyera repens or Creeping lady's tresses on their land should report felling only after the snow had fallen, as the orchid is more difficult to detect then.[63] I've met plenty of forest owners who've reasoned in a similar way. The forestry plan itself becomes one of the many methods the system uses to push forest environment issues to the periphery. It legitimises forestry that doesn't care about species protection. Someone – often the prospective timber buyer – draws up a plan for the forest owner and proposes measures that could prove illegal if the checks that are never carried out

were actually done. In this way, we forest owners are seen as worthy citizens while in fact we exterminate sensitive species that are protected by law. The system has chosen not to look for those species; of this we approve in silence and black becomes white.

One solution would perhaps be to introduce a requirement of a publicly available, established forest management plan based on knowledge of both the forest environment and production, that is, one that meets the requirements of the Forestry Act. Forest inventory makers could be trained in a uniform national regulatory framework. The people drawing up these plans would obviously need knowledge of biology, production and cultural values. This could become part of a systematic process of knowledge building about what Swedish forests contain. It would also mean that plans were made accessible so that the public could see what was going on and what was being planned in the forested land covering 69 percent of Sweden's land area. Instead, the state has discontinued inventories of where key biotopes, are located and has cut the budget for the Swedish Forest Agency and the Swedish Environmental Protection Agency. This is just one of many measures that serve to marginalise environmental issues.

In any case, Swedish forestry would need a more carefully considered regulatory framework resolving what's

permitted and what's not, and who is responsible for enforcing it. In my home region of Dalarna, we can see how this half-hearted approach to species protection is tearing the countryside apart. Normally peaceful villages are torn through by anger and despair. On the one side are the forest owners who want to trade forest stands and re-plant. They just want to do what the entire Swedish forestry industry has been doing for the last hundred years: clear-cutting!

On the other side, there's been a group that believes that the forest is an ecosystem that must be protected from clear-cutting. Their method has been to search for a rare orchid, Creeping lady's tresses, which is protected under the Species Protection Ordinance, and report their findings to the Artportalen databank of species occurrence so that logging can be stopped. They do this systematically to protect old-growth forests rich in forest species. The occurrence of Creeping lady's tresses signals a well-functioning forest ecosystem. However, the forest owners have appealed to the County Administrative Board, which has granted an exemption for logging on the grounds that forest management, »ongoing land use«, is more important than the forest environment. The forest owners have then taken the opportunity to register more old-growth forest for logging.

However, in early 2024, the Land and Environment Court ruled that species protection must be applied and therefore

halted logging in six cases in Dalarna. The ruling represents a change in practice and means that the state must compensate forest owners for lost logging revenue. In the directives for the new Forestry Inquiry, the issue of species protection is not included, to be handled by government agencies. This means that the future of protection for endangered species remains unclear. Will there be any protection at all? In June 2024, the Swedish government made it clear that the occurrence of the Creeping lady's tresses orchid should not hinder forestry.

There is a real need for a well-thought-out regulatory framework that doesn't exempt forest owners from species protection in each individual case on the grounds that forestry measures are already being carried out. In a kind of despair over the fact that species protection hasn't worked effectively, activist methods have spread; courses in forest inventory are filling up quickly, many people want to get involved, many want to learn more about the forest. But more of the sad and unnecessary local conflicts that add to the impoverishment of rural areas is to be expected.

One more issue regarding what we know about what's happening in our forests is the size of clear-cut areas. The Swedish Forest Agency reports that the total size of clearcut areas registered for felling has decreased. [64] This is a surprise to many who spend time in the forests and think they are seeing more andlarger clearings. Leif Öster, a forest owner,

has an example from his neighbourhood that may explain this:

In November 2023, Sveaskog announced that it would be clearing a new area near where I live. The clearing would be five hectares in size. But if you look more closely, you can see that over the past three years, the company has reported nine additional clearings adjacent to the new clearing. All ten of these notifications appear to be medium-sized clearings of 3.6 hectares each. But in reality, we'll end up with a single 36-hectare clear-cut area. What's worse is that these 36 hectares are adjacent to over 100 hectares of previous clear-cuts. So much for medium-sized clearings of 3.6 hectares. In reality, it'll all be one giant clear-cut![65]

Later in the book, I'll be looking at more hopeful versions of Sveaskog. But seeing these examples of what is happening in the forest landscape is like looking through a magnifying glass into the dilemma of Swedish forest policy. The democratic process has introduced a fake environmental policy, almost as if it were designed not to have the intended effect. The Forestry Act (SFS 1979:429) stipulates that *plant and animal species that naturally belong in the forest should be given the conditions to survive under natural conditions and in viable populations.* But politicians have provided the law with such weak means of implementation, so many exceptions, and so much freedom for landowners to do as they please that it has no effect. And the conflict ends up in the local community.



8 Who owns a forest?

PHOTO STAFFAN WIDSTRAND

The principle of »freedom with responsibility«, has been a cornerstone of Swedish forest policy for the last 30 years. It originates from the Forestry Act of 1933 and gives forest owners considerable leeway to make decisions on their forests.

Sweden has more than 300 000 individual forest owners, owning approximately half of the forest land. For many, the forest is the object of active, long-term commitment that may span several generations. For others, the forest is just an inherited capital, something that you hardly care about or pay attention to. They might live at a distance, they might not need money from the forest, or they might have such a small holding that there are no real returns. Perhaps they simply want to keep the forest as it is. Even though timber buyers, companies and forest owner associations provide their standardised proposals for felling, private forestry with all its different owners contributes to a reasonably varied forest landscape. The variety of ownership is an asset since it provides a fair amount of variability in the forest landscape.

Forest ownership in a democracy entails several rights or conditions determined by society. It's obvious to most people that the forest landscape is a matter of concern even to all those who haven't inherited or bought forest land. The forested landscape and the services it do by providing forest products, labour, eco-system functions and climate

mitigation is a common asset to society. In a democracy, the rights of individual forest owners to use the forest in various ways are always defined by, and can be changed, by the parliament. As a forest owner, you have a long-term relationship with society, but you don't »own« the land itself in an existential sense. You can call it a zero-free lease. For example, forest owners can always choose whether to keep or sell their property. They are allowed to use the forest and earn money from it, which is not controversial. In Sweden, for example, we have a Right of Public Access which allows everyone to visit forests and pick berries and mushrooms. Until now, and for a long time, this has been the social contract regarding forests.

But, as with forest policy in general, there's considerable uncertainty on one point – and that's the environment. Does the forest owner have the right to fully exploit the economic potential of the forest and therefore be compensated for taking public interests into account, for example by protecting sensitive environments from forestry measures? Or has the forest owner been given the right to exploit the forest on condition that the forest's biological function and diversity are preserved? This is a political question that has never been properly answered. Powerful forces within the land owner movement have pushed the argument that forest owners have the right to destroy environmental values and that society must therefore buy them out in order to preser-

ve them. This is an important, indeed central, issue for the future of Swedish forests. The more environmental considerations society must compensate for, the less environmental protection society can afford.

The lack of clarity on this issue has caused much of the heated debate on forests in Sweden: who is responsible for environmental protection? Who should have knowledge about the different values represented by the forests? Who should pay for the protection of the forest environment? The demand for stronger property rights is a constant feature of the forest policy debate.

In fact, over the past ten years, the main project of the forest owners' many organisations political, has been the fight for forest owners to decide on forest management. Part of this history has been described in an analysis by Umeå University.[66] Between 2014 and 2017, researchers located the term »property rights« in 130 articles in the Swedish press, mainly in the papers directed at rural landowners and smallholders: Land, ATL and parts of the press outside the major towns. A small number of people, 12 in total, accounted for a third of all signed articles mentioning property rights in the Swedish press. The study describes this as an echo chamber: a closed room where the same message echoes back and forth, repeated by writers with a similar ideology in a limited part of the media landscape. It was a matter of gainsaying the idea that the forest could also be

of concern for those who don't have their names on the title deeds.

In this echo chamber, the idea spread that property rights were under attack by the state, the government, the EU and international forest environmental protection efforts. This view has paved the way for budget cuts cuts to The Swedish Environmental Protection Agency and the Swedish Forest Agency, our most important authorities when it comes to forest natural resources. The main organisations representing organised forest owners, LRF (the Swedish Farmers' Association), Södra Skogsägarna, Mellanskog and Norra Skog, have tried to create a protecting wall against forestry policies that limit the rights of forest owners. The message they have given is that property rights should be so strong that we forest owners have a natural right to do as we please and only should be obliged to protect important environmental values if we're paid enough. Forest owners should have rights but few obligations when it comes to protecting the public interest.

In the new reality for forestry, which encompasses the role of forests in the climate crisis and biodiversity, the issue of ownership rights has come to a head. Sweden has signed the Convention on Biological Diversity and has stated that it must be defended through efforts in which the state plays a central role with its national environmental objectives and legislation, but in which other actors such as mu-

PHOTO LISA WESTHOLM



We shall use the productive capacity of forests but be careful with how and for what purpose?

nicipalities, individual landowners, the business community and civil society organisations also play an important role.[67] The motto »freedom with responsibility« seems to work in the opposite direction by making governance more difficult. It reinforces forests as production systems and hinders the view that the forest is also a biological and social system to be managed jointly. It prevents forests being managed from a landscape perspective. It reduces the legitimacy of politics. It conflicts with the established Swedish view that environmental problems must be solved with control mechanisms and responsibility designed at different political levels. Introducing clearer rules with appropriate sanctions and financial incentives would no doubt lead to a more open-minded search for knowledge about the state of the forests and the environmental consequences of forestry. And, of course, to forest management better in line with both the concerns of researchers and the conventions and regulations to which Sweden has committed.

It is problematical that the forest landscape should be managed from the lowest geographical level and by a single actor, the individual forest owner, who has strong interests of their own that only on occasion coincide with those of society.[68] Both the rhetoric and the regulations are different in environmental policy in general. Regulations without compensation are widely accepted in traffic planning or the transformation of the energy system. House owners must

PHOTO STAFFAN WIDSTRAND



What`s happening to my forest? Easy does it anyway!

comply with building restrictions and town planning measures without being compensated for the lost profit.

It is a widespread misunderstanding that the most common forest owner in Sweden are part- or full-time forest farmers working in the forest. Over the years, forestry trade magazines have developed a stereotypical image of this forest owner. A young family, perhaps with children, who make their living from forestry and thus keep the countryside alive. Such owners are extremely rare. This is a stereotype whose roots we can trace back to the 19th (and 20th) century and the redistribution of land, intending to create farms large enough to support a family, known as »besuttenheter« (smallholdings). Today, this is rather a political construct, serving to underpin support for strong property rights and the view that the state/society and, above all, the EU have no entitlement to interfere in forest management.

In reality, of course, there are all kinds of forest owners. A significant number are elderly, we know that they more and more often live far away from their forests, we know that many are very interested in nature, and we also know that others aren't interested at all. Anyone who has contact with private forestry knows that many owners reject environmental thinking outright. During interviews in different parts of the country, I've encountered forest owners who say that if they see a plant in the forest that might be rare, they immediately remove it so that the County admi-

nistrative board or the Forestry board won't find out. It's a simple and almost risk-free way of doing it; This opportunity to destroy environmental values in the forest without consequences can explain how the principle of »freedom under responsibility« could become so strong.

In economic terms, private forestry is primarily a source of capital income. But self-employment, as in forest management carried out by the owner, is a marginal part of forestry. For the vast majority, income from the forest is also a very small part of their economy. Only 2–3 per cent of forest owners in Sweden own more than 200 hectares of land.[69] To support a person or family, considerably more than that is needed. This is important; half of all forest owners own less than 12 hectares of land. The vast majority of forest owners in Sweden have little or no income from their forest. So it's not surprising that only 9 percent of all forest owners have a good return as their primary goal.[70]

In private forestry, there's something sometimes referred to as *amenity value*. I use the term to include all the experiences that the forest offers: love of nature, family ties, social relationships linked to the forest, identity as a forest owner, status, and the desire to manage something for which you're responsible. These are important values that hardly justify intensive forestry with stands of trees of the same age and species. Instead, they offer a fantastic opportunity for climate-adapted forestry based on knowledge and promoting biodiversity. That is, if they were supported by good advice. But the only advisor a forest owner generally has is the timber buyer. There are probably 1,000 timber buyers in Sweden, and their job is to come home with purchased volumes of timber. Their only real interest is to convince the forest owner to fell trees.

A study of how Swedish forest owners view increased environmental protection points to some important factors.[71] One is that voluntary commitments will not be enough for Sweden to protect essential biodiversity, as only 10 per cent of forest owners in the study were willing to take on more environmental protection themselves, unless other forest owners do so as well. But what is perhaps more interesting is that 29 percent expressed support for more government regulation of forestry. Many forest owners think it better for the government to regulate environmental protection so that it is the same for all, rather than for forest owners to decide for themselves. This study casts doubt on the forest owners' movement and forest policy's stance that environmental protection should be voluntary.

Outside the direct stakeholders in forestry, there is a deeply rooted popular movement that has long been involved in struggling for environmental protection. The Swedish Society for Nature Conservation (SNF), with approximately 200,000 members, the World Wildlife Fund (WWF) and Skydda Skogen (Protect the Forest) are some of the organi-

sations with considerable expertise. The first two have participated in countless forestry inquiries, consultations, and projects. In concrete terms, they have often been successful in some aspect or tipped a decision in »their« favour. But they've also had to live with the dilemma that, without really being able to influence forestry decisions, they've had to participate in various processes and lend legitimacy to forest policies that they don't really want to support. Nevertheless, their advocacy work and their critical view of the forest environment have reached a wide audience and built up the considerable interest that now exists for forest environment issues among the public.

Skydda Skogen has successfully disclosed numerous examples of forest companies violating the law in their forest operations. The information has been passed to the company's international customers as evidence of false sustainability claims. The organisation has also established a Forest Monitor, an accessible information system on the environmental values and status of forests across the country. The Monitor is increasingly used both by engaged individuals aiming to alert risks for environmental harm in planned lumbering operations and as planning tool for forest organisations.

The number of reports of rare species to Artportalen is steadily increasing, indicating continued strong interest in biodiversity. However, forestry issues are complex, and the

vast majority of Swedes are still relatively unaware of what is happening to the forests.

What about the opposite view? How does the forestry industry view environmental organisations? Well, opinions vary widely. Firstly, the many people who work in and represent the forestry industry have a keen interest in nature and are also members of an environmental organisation. They don't see this as a problem; they both enjoy nature and view forestry as reasonably sustainable. However, there is also considerable anger within the industry towards organisations such as the Swedish Society for Nature Conservation. Here is a quote from an interview with a forestry director on the board of Future Forests: *»The Swedish Society for Nature Conservation is built on conflict, they are good at it, they thrive on being good at it, that's how they get their members. Therefore, it's not a good idea to try to include them in a consensus process.«*[72] So it's best to leave them out completely.

We know very little about how Swedes who aren't forest owners view forestry. In recent years, the spread of clear-cutting has become so apparent to anyone travelling through the forest landscapes north of Götaland that many have reacted. There are countless reports that there will soon be no forests left to hike in, pick mushrooms and berries in and so on. But there are many Swedes that don't have a clear understanding of forestry. The SOM Institute at the

University of Gothenburg regularly surveys Swedes' values. In the 2023 survey, there was actually a question about whether Swedes want to increase, maintain or reduce the current level of logging.[73] The responses show that many find the question difficult to answer, but that a large majority of Swedes don't want to see more logging in Sweden. 38 per cent want to see a reduction in logging, while 6 per cent want to see increased logging.

There is also a latent public anger towards forest management that is strong enough to be used in marketing. In March 2024, the Swedish outdoor company Icebug launched an advertising campaign calling the government to account for its forestry policy. The sustainability manager explains the reasoning behind this: *We want to preserve real forests in Sweden! Forests filled with animals, plants, fungi and life. This issue is too big and too important for us not to step forward and make our voice heard. Private individuals, researchers and environmental organisations have been protesting for a long time – now we as a company want to take responsibility and tell the government that we too believe that Swedish natural forests have values other than as a raw material. Climate and business are now under the same ministry, so let's hope that someone there is listening!* [74]

Support for the ruling parties' forestry policy would probably be very fragile if more people understood what it means for the Swedish landscape.



9 Sustainable forestry in practice?

PHOTO STAFFAN WIDSTRAND

The last few years have seen major changes in Swedish forest debate and sometimes also in the every-day forest management. Forest companies are signalling a reduction in logging. Headlines in the forestry industry's magazines, speak out new messages; *Wanted: More leaves in the forest.* Or this one: *Continous cover forestry* (CCF) *becomes an alternative.* The Swedish Forest Agency is opening a door in its own magazine Skogseko with a special issue on CCF and headlines such as Many advantages of mixed forests. Such »alternative« forest management has for long been close to taboo in Swedish forestry.

Some large institutional forest owners are rethinking their forestry practices. The Church of Sweden has investigated how to ensure that their forest management is not only economically viable but also socially, ecologically, spiritually and existentially sustainable. The Church of Sweden owns approximately 1.5 percent or around 400,000 hectares of Swedish forest land. Uppsala University manages just under 60,000 hectares of forest land. The university has decided to transition to clear-cutting-free forestry on 20 per cent of its holdings. The goal is to reach 32 per cent rapidly, thus fulfilling EU strategy for biodiversity. They're showing signs of wanting forestry that can better serve both economic returns, climate benefits and biodiversity. Municipalities that own forests are formulating plans that focus on the forest's broader values.

Nevertheless, it is striking how incredibly long it takes for these hints of change to have a broad impact. The forest is also a slow system in itself. Around one percent of forest land is cleared each year in clear-cutting operations. If a different type of forestry is introduced on 20 percent of the land, it will take some 500 years before the change is implemented throughout Swedish forest.

Sveaskog is the Swedish state owned forest company and the largest forest owner in Europe. In May 2024 their CEO, Erik Brandsma, presented a radically new direction for the company. The starting point is that the division between land that is protected from forestry on the one hand and land where commercial forestry prevails on the other is a dead end. Sveaskog wants to show that it can balance several interests in the same forest:

Through more varied forestry, we can create value for industry, the climate, biodiversity, reindeer husbandry, outdoor recreation, hunting and fishing. Sveaskog's focus going forward is on balancing all these interests and optimising value creation, as well as conducting more varied forestry. In more diverse forest management, the current focus on individual species in species protection work becomes less interesting. Instead, we start from entire forest environments and their development over time. To increase the number of deciduous species, we need to take advantage of their natural regeneration and then actively clear and thin so that their

proportion increases in the growing forest. This is more effective than simply waiting for it to be time to harvest Sweden's often heavily conifer-dominated forests [...] Sveaskog will continue to develop diverse forestry with various management measures and adaptations that we are happy to showcase and discuss with the outside world.

However, Sveaskog's past history is full of promises that haven't been fulfilled.[75] Sveaskog is state-owned and ultimately controlled by the government, which has shown no willingness whatsoever to make changes like these. It remains to be seen whether these changes will ever become a reality in the forest landscape. But at least it shows a major change in thinking, a new voice from part of the forest industry. Thus, both the motives and the driving forces for changing Swedish forestry exist, as do actors who want to implement the change.

Now we need to look a little more closely at what concrete changes this might require. The Swedish Environmental Protection Agency and the Swedish Forest Agency have developed a Swedish definition of what is known as nature-friendly forestry: *Closer-to-nature forestry mimics natural disturbances, creates diverse forests and maintains or enhances environmental values in the forest landscape. Management is based on a landscape perspective and includes adapted selective cutting, continuous cover forestry and certain historical forms of management.* [76]

The definition is close to the European Commission's guidance on »Closer-to-nature forest management«. It should apply to both small and large forest owners and be adapted to different regions. There's now also a plan for how it can be introduced in state-owned forests and proposals for training initiatives, research and further studies on economic incentives and advice based on it. [77]

Do we have any examples of such forestry also yielding a reasonably sized timber production and economic return? One of the few known and studied examples in Sweden is the project Natural Forestry in Tiveden.[78] This was started by Marta and Anders Tivell, who have been practising their version of natural forestry since the 1980s. The basic idea is that the forest is a self-organising system that has developed the ability to adapt to various disturbances over a long period of time. We can only guess at the number of feedback loops and processes involved, and it's impossible to gain a complete understanding of the whole. However, climate change and the loss of biodiversity will certainly cause disturbances in our forests that we currently know little about. Forests must therefore be managed in a way that harnesses their own capacity, minimises risks and creates robust forest stands.

The Tivells haven't done any clear-cutting for decades. Their main principle is also to avoid yearly thinning and to only fell the largest trees at any given time. The costs

PHOTO ANDERS TIVELL



Close-to-nature forestry in Tiveden. This is an example of a gap cutting that lets in enough light to encourage the regeneration of different tree species.

of establishing stands are low, and there is little work to be done in the forest apart from when harvesting the largest trees. Felling also results in reasonably low costs because large volumes can be removed quickly. In this way, the forest gains a large carbon store while at the same time generating profits from forestry that are fully comparable with those from clear-cutting. In this type of forestry, biodiversity isn't seen as an environmental consideration, but as a means of keeping the forest healthy and productive. Profitability lies mainly in not felling young trees. The aim

is to create multi-layered forests with a mix of tree species adapted to the conditions at each location. This also creates variation between different parts of the forest. And it's a forest very pleasant to spend time in.

On one important point, experiences from Tiveden run counter to a fundamental principle in Swedish forestry. Its »normal« practice is to thin the forest at least once, often twice during its lifespan. The first thinning yields very little, if any, economic return during the forest's rotation period. Forest owners do this with the aim of allowing the largest trees to grow faster in the final phase. In Tiveden, however, experience shows that leaving young trees standing has very little effect on the growth of the largest trees. The large trees have their crowns above the smaller ones and their growth is hardly noticeably disturbed. Over time, this type of forestry practice has gained many followers in neighbouring areas and also forms part of a project funded by the World Wildlife Fund (WWF), which offers courses and training days on its principles and experiences of it.

A study published by Skogforsk (2024) shows that lower thinning often results in higher forest growth and a larger timber stock over time.[79] This is not really surprising and fits in well with the climate situation and EU policy. By reducing logging slightly in the present, you get less pulpwood, but more timber that can be used for buildings, where the carbon is stored long-term. It works like a type of savings bank.

GROWING BANANAS IN TANZANIA

PHOTO ERIK WESTHOLM



The Vi Agroforestry in Bukoba, Tanzania: The banana tree must be replaced in time.

For a period of time, Dalarna University collaborated with the Vi-skogen tree-planting charity in East Africa. I was part of a team of teachers who travelled with students to map the ground vegetation in selected sample areas. In 2008, we also organised a course in landscape analysis for local employees in VI-agroforestry. The participants came from Tanzania, Kenya, Uganda and Rwanda and learned methods for studying landscape changes in detail. For Vi-skogen, the aim was to record how the project was changing agriculture.

We also travelled around the villages. On one occasion, we visited a woman who grew bananas. She praised the Vi-Agroforestry for all the good advice she had received. Before, she said, I kept the banana trees until they got old, then I cut them down and planted new ones. The Vi-Agroforestry advisor told me to plant a new one long before the big tree got too old. And

PHOTO ERIK WESTHOLM



When they began their work in East Africa, people's living conditions were the primary focus. The goal was to increase biodiversity while simultaneously producing food. Now that the climate crisis is a reality, they work to support local communities and their livelihoods, protect the local environment, and combat global climate change. They achieve this by combining crops with trees.

then another one, so that I always had three sizes in each place. That way, I got bananas continuously from each planting site.

She should have been able to figure that out for herself, I thought. Strange that this isn't traditional knowledge here. I also felt uncomfortable because I looked at her a little condescendingly. It wasn't until 15 years later, when I heard Anders Tivell talk about his continuous cover forestry in Tiveden, that I realised that the entire Swedish forestry industry is based on the same idea: Anders Tivell said that these young trees, which are 15, 20, 30 years old, should definitely not be thinned out, because then you're left with an area of bare ground and have to start all over again, and it takes another 60–80 years to harvest. It's important to have continuous production and multi-layered forests. Now I think it's strange that this isn't experience-based knowledge in our own northern forests. What role do forest owner associations play in this? And what about the forestry industry with its hunger for pulpwood from thinner trees?

10 Farewell to the forest landscape



PHOTO MARCUS WESTBERG

So now we've been through the most important parts of the public debate in Sweden on forests and forestry: the first was the historical account that highlighted how the forest was industrialised and how Sweden later lost its role as a model nation for forest policy. Then we highlighted how changes in the forest landscape itself affect forestry, and we showed how forestry is woven into broader issues and decisions, mainly about climate and biodiversity. A new ballgame is emerging. We've also discussed two themes that are important for understanding all this: firstly, the knowledge on forestry and forests that we as a country has produced and, secondly, the question of forest ownership rights. Is it at all possible to have forests that contribute to long-term socio-political goals if individual forest owners alone are to decide on forest management?

It's patently clear that the forest industry and forest policy strives for see even more timber-focused forestry. Demands for timber from the Swedish forests are as loud as ever. This we see, for example, in the directives for the new forest inquiry in 2024, where guidelines are being drawn up so that efforts to increase volumes can continue unhampered. Biodiversity is kept in the margin and its role made vague and unclear. Biodiversity is formally an important part of forest policy, but politically it's handled so that it can never gain strategic importance. Over times it's become increasingly

mentioned in forest policy statements but rarely accompanied by concrete proposals – simply because biodiversity doesn't fit in with the dominant idea of a growing bioeconomy.

Political decisions made in recent years in Sweden regarding the future of the forests are very worrying. Funding has been cut significantly for both the expert authorities, the Swedish Forest Agency and the Swedish Environmental Protection Agency. This has led, among other things, to the rapid deforestation of mountain forests that need protection. Maps of areas registered for clear-cutting have been described as a battlefront with clear-cut areas right next to each other. Sweden has abandoned its ambition to meet the climate targets set by law for 2030. Funding for the creation and management of nature reserves has been drastically reduced. Knowledge about the environmental status of forests has been undermined by the abolition of inventories of environments worthy of protection. Now, species protection is also being called into question.

This policy is leading to irreversible changes in the forest landscape. The remains of millennia-old ecosystems are now disappearing, and the changes are permanent. Government policy, however, shows no concern at all about the future of the forest landscape.

Nevertheless, there is hope that criticism of this policy

will have an impact. We are seeing a counter-movement emerging among landowners, in the media, in the environmental movement, in environmental research, in international politics and in markets that are making very different demands. This new, broader agenda has been partly formalised in EU policy with the Climate Law and the Regulation on Nature Restoration in the EU. There are also plenty of signs that we'll be seeing greater variation in how forests are managed. Climate change is real and is affecting forests in ways that are becoming increasingly obvious. The forestry industry and forest owner associations are encountering more concerned landowners who don't believe in monocultures and who are rethinking their forestry practices out of concern for the environment or to secure the future of their own forests. Forest owner associations will likely be forced to open up to a greater variety of ideas about how forests should be managed.

As usual, strategies in privately owned forests vary greatly. SLU professor Per Angelstam has often pointed out that all these differences provide us with an opportunity we can build on.[80] Privately owned forests are social systems, and a range of different management methods are needed and also to some extent provided by the many. But for this to succeed you need advisors with a broader focus than the timber buyer's sole mission of procuring raw materials at the lowest possible price.

These changes are being driven by new knowledge. Based on research, the Swedish Forest Agency and the Swedish Environmental Protection Agency describe today's forestry as unsustainable and conclude that more knowledge is needed about different ways of managing forests. Since so little research and development has focused on alternatives to clear-cutting, there isn't even a common vocabulary for other types of forest management. People often talk about clear-cutting-free forestry. But this is a kind of non-definition that isn't very helpful in the discussion about what management alternatives are available.

What we need now is a genuine search for the best ways to harness all the values of the forest and create value in more robust forests. We need to develop a knowledge field that moves towards flexible specialisation in forest management. This means utilising rather than destroying diversity, seeking the best use for each specific hectare and each individual species of tree, almost each individual tree, in the pursuit of forests that are functional under these new conditions. This is almost the opposite of focusing on volumes and viewing forests as a bulk commodity for export. Development must move towards longer rotation periods, forests with trees of different ages, more natural regeneration and more mixed tree species in the same forest.

There is now a clear path towards an alternative forestry. This is no small change. The clear-cutting model is so do-

minant and the forest landscape already severely damaged. The road ahead is fraught with uncertainty and political support for the transition is wholly inadequate. Swedish forestry and Swedish forest policy are still mainly moving towards more intensive use, which threatens to derail both climate goals and biodiversity. It really is truly remarkable that we still have a Swedish Forestry Act that doesn't address the climate issue at all.

Many have described the stultifying inertia of the forest industry in learning to play on the new playing field[81] and that they so often lag. To understand that climate change is a real problem and not a political one, to realise that the EU may have ambitions that must be taken seriously. Neglecting the warnings about what is happening to the forest itself: the risks of invasive species, forest fires, timber shortages and all the rest. Well, this inertia certainly does exist, and it can be explained by the fact that the forestry industry is founded on deep traditions, that the paths of dependency are so difficult to leave and that the confinement within a narrow sector is so great. But the forest industry's current approach to tackling the climate crisis with high-yield turbo forestry, which runs counter to research, can't just be seen as mere inertia. To understand it, we must realize that this is an industry that is defending its annual profits, estimated to be in the region of 50 billion Euro's.[82]

As so often before, current economic benefits are at odds with environmental interests. Our »need« to consume now stands in opposition to future prosperity. Conflicts that need to be resolved in the present are pushed aside in a false compromise on the timeline. If the consequences of our actions in the present were to affect us immediately, they would be the central conflict issue in today's society.[83] What is now exacerbating the conflicts though, is that the climate threat can no longer be treated as an issue in the distant future that you can discuss tactics for. It has suddenly descended upon us, here and now, and is being picked up and shaking all power relations by the scruff of the neck.

The forest industry in Sweden is dominated by 6–10 limited companies and is based on capital that is not tied to forestry but can be moved to other parts of the economy if the forest runs out or if profits decline. For them, profitability is to be immediate, so it's logical for them to oppose environmental considerations that have long-term motives, such as those that lie beyond the planning horizon or the demands of the stock market.

For the individual forest owner, on the other hand, continued ownership is the typical starting point. Many manage the forest for future generations and want to pass on a value that is not only financial and, above all, not based as much on current returns. Forest resilience, i.e. sustainability, re-

sistance and future value, is of fundamental interest to the individual landowner.

Swedish forestry has never made this distinction between industrial capital and forest owner value. Instead, the forest owner movement has organised itself around the idea of short-term values, as if it were part of the processing industry. A growing awareness of this is perhaps the greatest opportunity for a shift in Swedish forestry towards sustainability.

Finally, what kind of forest can we expect to have in 20, 40 or 60 years? One guess is that the battle for the future of the forest will give us islands of varied »diverse forestry« but in a forest landscape that is still dominated by high-yield turbo forestry. And that will be the end of our last opportunity to create a diverse, functional forest landscape in Sweden.

OUR FAMILY FOREST

It all started with a herbicide, Hormoslyr. I was 13 or 14 years old and had just got my first holiday job, running to fetch water to dilute the Hormoslyr. I rushed through the young forest down to the lake, out onto the sandy bottom until it was deep enough to fill the buckets, back up the slope to the Hormoslyr barrel where the forester was already waiting with an empty sprayer to fill with poison and water for the next round. His idea – an idea I shared at that time – was to wipe out all the leaves that could slow down the growth of the spruce trees. We only wanted one single species.

But the job was too demanding and I was exhausted after the first day. I got a new job in another spruce plantation; before clearing, I had to put red tags on spruce trees that were to be saved. The same idea guided this effort – to wipe out the deciduous trees. It was only later that I heard that the foresters' battle cry had been »At the most one birch-tree per district«.

Deciduous trees weren't welcome anywhere in Sweden's forests. For a time, the Hormoslyr sprayer with the tank on your back was a great help in the private forestry industry's efforts to replace mixed forests with stands of trees of the same age and species. Soon enough, I got to try it myself, mixing the toxic brew and walking around with the apparatus on my back. Unfortunately, it leaked just where the hose was attached to the nozzle, so we wrapped a strip of cotton bedsheet around it to stop the leak as best we could. Not the best method! My Hormoslyr soaked hand itched from insect bites in the summer heat, and my back was always wet through. It wasn't a big deal, but I thought of the Hormoslyr as a little more unpleasant than normal sweat. My scent memory can still bring Hormoslyr back to life in a split second.

500 hectares in Bergslagen

Bergslagen is an extensive region in central southern Sweden, known for the small-scale mining of copper and iron that went on here for centuries. Our family forest, the Björkvreten estate, is located right in the middle of Bergslagen, about halfway between Stockholm and Oslo. It covers approximately 500 hectares and has 36 co-owners with varying shares. My own share is

PHOTO ERIK WESTHOLM



PHOTO ERIK WESTHOLM



Coffee break by the oak plantation.

12 hectares, which is the median value for Swedish forest owners' holdings. Thus, half of all Swedish forest owners have less forest land than I do. Formally, our forestry is run according to the Joint Ownership Act, i.e. without a company structure. We avoid voting but try to find solutions that everyone can live with. It has worked because there are intangible values in us doing the work together, and that has been worth making occasional compromises. Some of the co-owners have left over the years.

For years we've been planting trees

The years passed and we planted trees on the clearings every Ascension Day weekend in the spring. Sisters and cousins in rows two metres apart; wonderful days with quiet small talk. Years turned into decades, and a new generation appeared on the clearings. The youngest children got to look for moose droppings to use as fertiliser next to the plants, while the older children had to carry soil in bags to rocky areas where there wasn't enough soil for the seedlings.

A few years later they could start using planting tubes or hoes, depending on the type of soil and the type of seedlings we had. These might be

PHOTO LISA WESTHOLM



You should get the forest landscape at an early age.

bare-root seedlings that had to be kept moist in the bag and needed deeper holes, or paper pots, seedlings in a small package that could be dropped into planting tubes and opened at the bottom with a grip on the handle. It was quick and convenient, and you didn't have to bend over. Pine seedlings could be protected from pine weevils with white plastic collars, and the seedlings might either be impregnated with poison or not. This varied somewhat over time. But for a long time, we did what most forest owners did; we planted spruce or pine on areas that we had »clear-cut«, i.e. left bare.

PHOTO BJÖRN O HENRIKSSON



Birch forest on the way! It is a fire protection having it facing the built-up area.

Trial and error

Despite this, we've also been experimenting for quite some time now. Here in the picture, you can see a planted birch stand that we have plantated in order to produce high-quality timber, i.e. sawn birch. We wanted to introduce more deciduous trees into the forest at an early stage. Extensive charcoal burning in the Bergslagen region for the old mining industry eliminated much of the deciduous forest, which was replaced by conifers. The birch forest is located close to some holiday homes, creating both a brighter forest and a certain degree of protection from forest fires.

The oak forest

In 2014, we planted 2,000 oak trees in the family forest on a 1.5-hectare area where we'd felled an old spruce stand and only saved a few aspens. Oak forests don't usually thrive in Bergslagen, but this is changing with climate change. No one know for sure what will be best in a few decades. Oak provides a habitat for many organisms and is of great importance for biodiversity. In Sweden alone, an estimated 1,500 species are dependent on oak trees. These include beetles, wood fungi, lichens and birds, most of which are red-listed. We got an EU grant to build a 240 cm high fence to keep out the wild animals such as moose and deer that graze on the seedlings and new growth.

Ten years have passed now. We've got a large area of rowan, birch and aspen. It's as if all the deciduous trees had been waiting to get a protected space among all the conifers. The moose look on it as their own property and break in from time to time, but they prefer to eat rowan. So it seems that we're on our way to having a mixed deciduous forest dominated by oak. This has required a fairly large amount of clearing work to prevent the oak seedlings from being kept back by other deciduous trees.

PHOTO LISA WESTHOLM (ALLA BILDER PÅ UPPSLAGET)



2014. And so, the oak planting began!



2014. We planted oak saplings in groups of seven, spaced seven meters apart. Eventually, the groups will be thinned out, until finally, only one oak remains in each group.



2023. Where did the beaver go? The oak's foliage has become truly lush.



2023. 10 years old: The oaks are starting to get big now.



2024. Here, the beavers have done all the clearing and taken everything they felled. Left behind were the groups of oak. Thanks for the help!

How do you protect yourself against forest fires?

In the summer of 2014, the largest forest fire in Sweden in 70–80 years broke out in the north-eastern part of Bergslagen. 13,800 hectares of forest were affected – that's an area almost as large as Lichtenstein, 25 buildings burned down and the fire claimed one life. The smoke from the fire spread across the whole of Bergslagen, striking fear into forest owners. Heavy yellow clouds hung over the forests. The immediate question was, of course, the risk of the fire spreading. How far could the fire spread? What direction was it heading in? How could people prepare and perhaps protect themselves? What was their insurance cover like?

Later we went to see the huge areas of burnt forests, mainly resembling a scary lunar landscape. May it never happen again. In the aftermath of the fire, the question of responsibility was discussed, and information about fire prevention measures was posted on the Swedish Forest Agency's website. In this case, they'd been using a forest machine during an extreme drought and a spark had probably ignited the forest. But in our family, we asked a question that lingered for several years: how can the forest be managed to limit the risk of large fires? What does a more fire-resistant forest look like?

I discussed this with researchers at the Department of Forest Ecology and Management at SLU. Why has the fire aspect received so little attention? Why is there nothing about fire protection in forestry plans? After further discussions with forest ecologists, I understood that more deciduous trees in the forest would limit the risk. You might even be able to plant corridors or squares of deciduous trees as a kind of firebreak. This also gave an important explanation to why the issue has received so little attention in Sweden's forestry sector: fire protection measures conflict with timber production. The forestry industry hasn't wanted to see any deciduous tree corridors or mixed stands at all. Everyone seems to have trusted that if there is a fire, the state will pay compensation to the forest owners. And there's always insurance, of course.

So, the knowledge is there about which forests would best withstand fire, but it doesn't seem to be so important for Sweden's forest industry, even though the Swedish met office warns of greater risks of forest fires in the future.

We discussed this in the family forest group and came up with a homemade principle: we promote deciduous trees along the forest roads, about one tree length in each direction. We do this in conjunction with logging so that there will gradually be deciduous forest along the roads. This gives us a decent firebreak, perhaps 40–50 metres wide.

In the family forest

Back to year 2021. We are standing next to a 12-hectare spruce forest on arable land that was planted with trees about 60 years ago. Only a few years ago, people would have thought that it should be left to grow for another 20–30 years and produce a large volume of growth. Now, the company that buys our trees says they want to harvest them immediately, at least most of the field plantation: »It has served you well, now we're replacing it.« In a way, this is perfectly normal for a timber buyer. But they have a new argument: otherwise, bark beetles might infest the forest, rendering it useless. We are now well into a period where it has become the new normal in Sweden to fell 60-year-old trees.

Is the bark beetle an empty threat or a real threat in this particular case? We don't know. Neither do the timber buyers. If the threat is real, what should we plant instead when we've felled the trees? Forest biologists warn against spruce, as it's sensitive to drought, threatened by bark beetles and prone to burning. Some say that spruce stands just won't work in the future.

So what do we do? Can we carry on having only one tree species, or should we try to achieve more mixed stands? If so, what kind of mix? What principles do we follow? What should we be protecting ourselves against? Fire? The forest corporations? The EU? Climate change or bark beetles? The questions are piling up, and the Swedish forestry system is ill-equipped to help us. The climate crisis hangs like a cloud over everything and could change growing conditions very quickly.

Our forestry plan, like most others, is essentially just a harvesting plan

PHOTO HELENA WESTHOLM



Severe bark beetle infestations prompted us to seek a more resilient forestry model.

that is no longer very helpful. But at least for me, the question arises: why are we harvesting younger and younger trees in Sweden? How could this be in the interests of forest owners? Who would gain and who would lose if we allowed trees to grow taller and thicker? We'd be able to extract greater volumes and the standing forest would increase its carbon stock during these coming years that are so critical for climate work. So urgent questions are growing even more urgent.

Towards more nature-friendly forestry

Back to our family forest. We have a board that makes decisions on an ongoing basis throughout the year, and we also have a few occasions when a lot of us get together. We have workdays, and during the summer we have an excursion in the forest followed by a meeting that ends with a party. So there have been plenty of discussions over the years. With time we've gradually formulated principles for how we should manage our forest and then set them out in a written document. This has evolved over time and come to encompass precisely those issues that have been relevant for us to take a position on.

In 2023, we decided on a new forestry plan based on the principles of Closer-To-Nature forestry. In a way, it was a big decision; we loosened our ties a little to the forestry company that buys our pulpwood and timber and carries out our forestry operations. But it wasn't a very dramatic decision, as it was a natural consequence of our settled principles. We'd been moving in that direction for a long time. We've reduced the size of clear-cut areas and increased the proportion of deciduous trees; we've made voluntary set-asides from forest management and have increasingly discussed how we can introduce more tree species diversity when planting. Severe attacks by spruce bark beetles helped; confidence in new large spruce plantations had decreased significantly, so we had to choose another way to regenerate our forest.

And renewal continues. There's a lot we don't know about closer- to-nature-forestry and little knowledge about it in Swedish forestry. For example,

PHOTO ERIK WESTHOLM



Here is the ditch that may be filled in to rewet the surrounding forest.

PHOTO ERIK WESTHOLM



Will there be any forest left when I grow up?

we must look for ways of renewing older stands of even-aged forest with a single species without cutting down the entire forest. We don't want to end up with a clear-cut area of bare ground and have to start all over again. We want to strive for more variation in age and tree species.

We're now also in the process of rewetting some areas in the forest that had been drained previously. This is based on a proposal from the Swedish Forest Agency, which is now implementing EU policy and reimbursing us for this contribution to climate action.

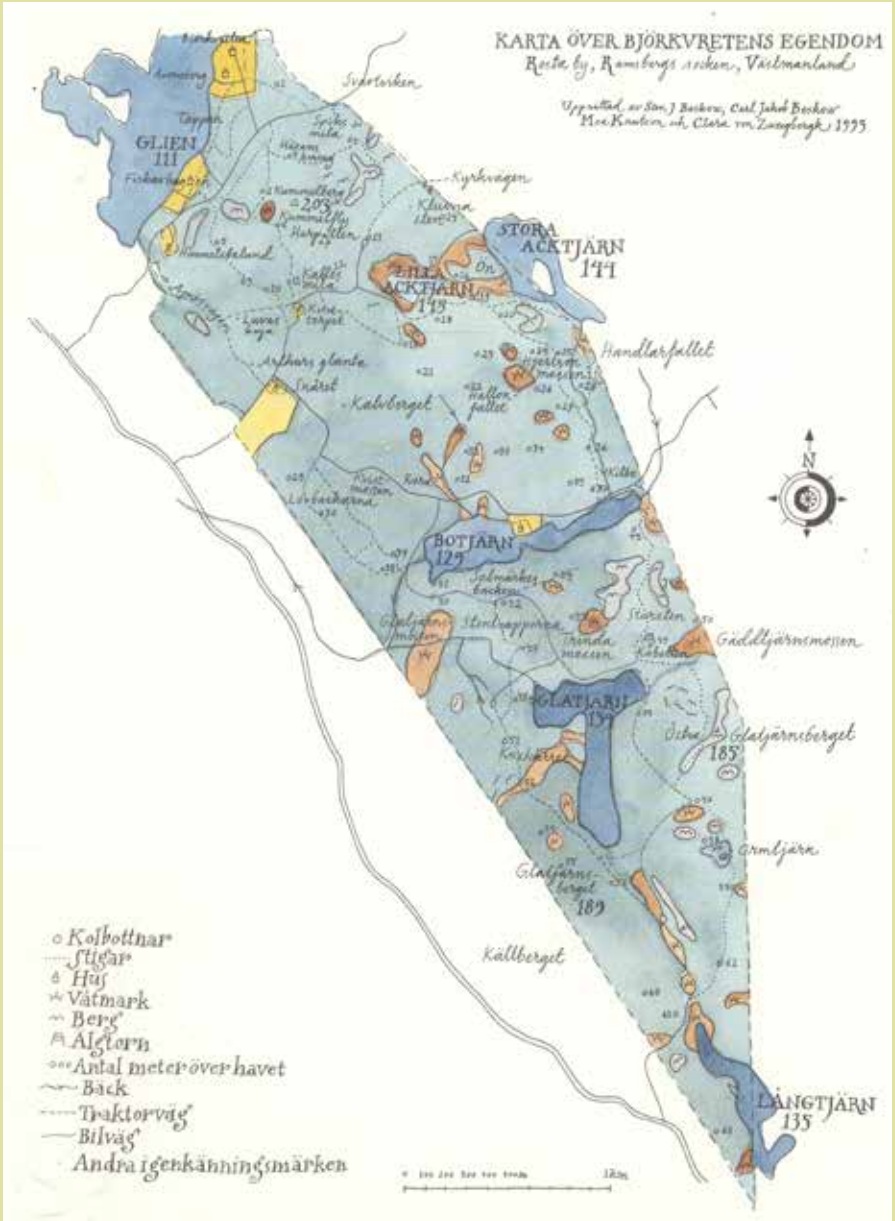
2024 – rewetting of forest land

About 60 years ago, ditches were being dug everywhere in Swedish forests. We did the same in our family forest. We dug the ditches to drain the land and increase forest growth. It was tough summer work for young forest owners and their neighbours. But now, we've started filling in the ditches to »rewet« some of the land. This is an effective climate measure on nutrient-rich peatlands, which account for a significant proportion of greenhouse gas emissions. The effect of the rewetting varies depending on how nutrient-rich the soil is and how the water level changes. The Swedish Forest Agency helps us select suitable locations and carry out the plugging itself. We get paid for this, it being part of the EU's climate policy.

This is an example of how the playing field for forestry has changed in just a few years. It shows both the seriousness of the climate crisis and that the various ecosystem services provided by forests are becoming more important in politics – as well as being a potential source of income. And the number of similar schemes will increase as private and public systems are developed to compensate forest owners for increasing their carbon stocks or biodiversity in the forest. We have long had other types of compensation, such as hunting leases.

From other forest owners I hear how this becomes part of the narrative about EU, without understanding anything about forestry, wanting to dictate the details of our forest management. Forest owners have seen it as the EU wanting to flood forests, but they don't seem to have understood the reason why, nor that it is voluntary and provides compensation. Re-wetting becomes part of the widespread idea that the EU is preventing us from managing our own forests and contributes to people rejecting the EU as being ignorant.

MAP: CLARA VON ZWEIGBERK



The Björkvreten Estate. It is wonderful having the entire forest in just one continuous tract.

Target document for Björkvreten Estate

Policy

We shall conduct long-term sustainable forestry that provides

- a reasonable return to the shareholders
- good conditions for biodiversity
- a forest with recreational value

Strategy for forestry, forest management, cultural heritage management

- The property shall be environmentally certified
- Increase tree species variation
- Increase the proportion of deciduous trees. Maintain a small-scale division into sections
- Continue to have voluntary set-asides for environmental conservation, e.g. the Björkvreten nature reserve
- Maintain a high level of ambition regarding clearing
- Protect and maintain lake shores, paths, old house foundations, springs, charcoal kilns and buildings
- Keep our forest roads in such a condition that they are passable by car
- Keep up to date with and consider new knowledge and research in forest management

Strategy for social and economic aspects

- Promote family ties through, for example, workdays, meetings and good communication
- The land should be an asset to the community through its recreational value
- Maintain long-term relationships with partners who are familiar with our property. This applies to forest management, hunting, roads, etc.
- In the first instance, choose contractors with local roots. Cooperation in SSIR (Cooperative Forest Owners in Ramsberg) has high priority
- We shall be open to different solutions and different forestry companies
- Any surplus generated will be distributed to the shareholders, which means that dividends vary from year to year

Notes and comments

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    - Danske Bank warns in its report *Skog och ekonomi* (Forestry and Economy) that logging in Sweden will decline in the coming years. This was also reported in the magazine *Skogen* in 2023.

    - Debate in the newspaper *Altinget* on 7 March 2024

    - The investigation into the Church's forests indicates that logging must be drastically reduced in the future.
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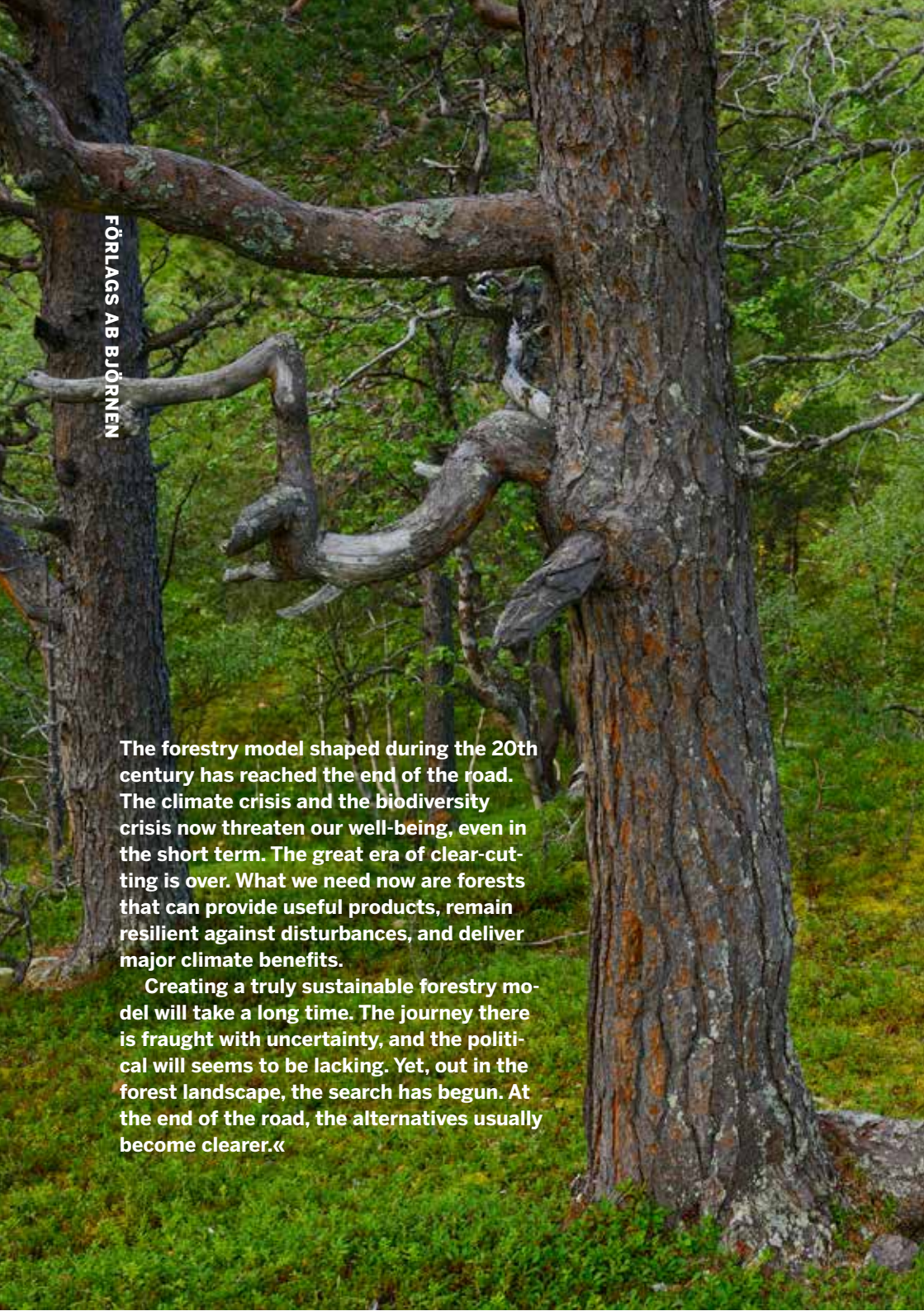
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FÖRLAGS AB BJÖRNEN

The forestry model shaped during the 20th century has reached the end of the road. The climate crisis and the biodiversity crisis now threaten our well-being, even in the short term. The great era of clear-cutting is over. What we need now are forests that can provide useful products, remain resilient against disturbances, and deliver major climate benefits.

Creating a truly sustainable forestry model will take a long time. The journey there is fraught with uncertainty, and the political will seems to be lacking. Yet, out in the forest landscape, the search has begun. At the end of the road, the alternatives usually become clearer.«