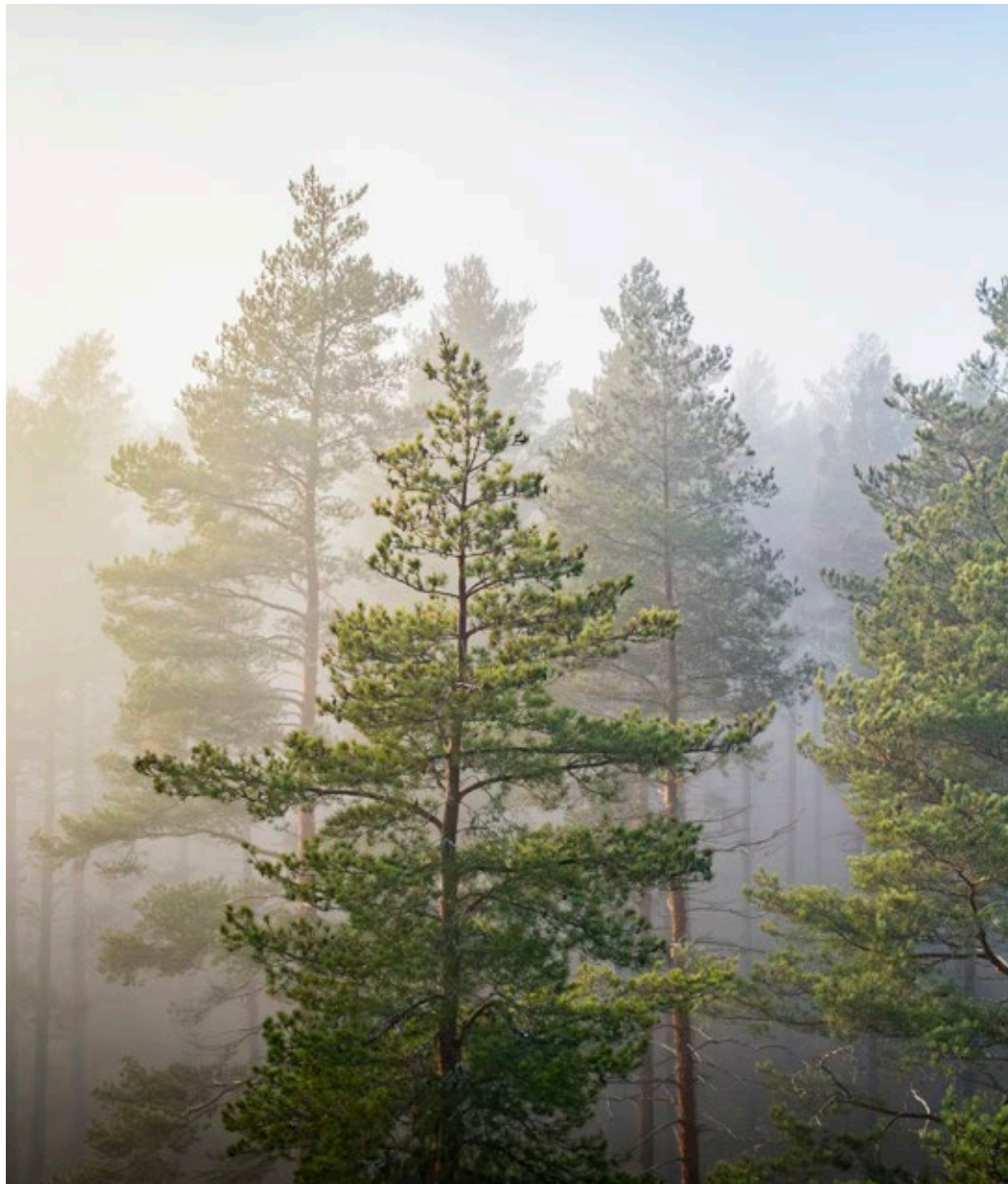




RESPONSIBLE FORESTRY



**RESPONSIBLE
FORESTRY**



Introduction	3
Our forest, a 10,000 year history	4
Balancing all values of the forest	8
Forests of northern Sweden and SCA's forestry	10
Nature consideration and conservation	
– for richer forests	20
SCA and reindeer husbandry	37
Active forestry benefits the climate	40
Forestry for the future	44



Introduction

The forest is the core of SCA's operations, and thanks to our responsible management, it remains an eternal resource. Our aim is for our forests to be at least as rich in biodiversity, nature experiences, and raw materials in the future as they are today. Through our active management, the forest and its renewable products also provide significant climate benefits.



SCA is Europe's largest private forest owner, managing 2.6 million hectares of forests, mires, lakes, and mountains in northern Sweden. We also own land in Estonia, Latvia, and Lithuania. As a major forest owner, we are responsible for conducting forestry that balances many different values. This means that we combine a high level of renewable raw material production with extensive consideration for biodiversity, reindeer herding, outdoor recreation, and much more.

Our goal for biodiversity is simple yet challenging: All species present in our forests today should have the opportunity to exist there in the future. This applies not only to large, spectacular species like bears and golden eagles, but also to species like the Karelian bark beetle (*Xylomya czekanovskii*) and freshwater pearl mussel (*Margaritifera margaritifera*).

In our efforts to protect biodiversity, we utilize a full palette of conservation tools. This include nature consideration in all forestry activities, using continuous cover methods where appropriate, setting aside forests with the highest conservation values, and taking active measures to preserve, develop, and re-create habitats.



Maintaining high and stable growth in our forests is also an important part of our responsible forestry. It enables us to generate substantial climate benefits and contribute to societal benefits.

The climate benefit is multi-faceted: Growing forests bind carbon dioxide, and wood-based products store carbon and can also replace fossil products. In this way, we help consumers worldwide make the transition to a fossil-free society. Our contribution to national and local economy includes the creation of thousands of jobs, maintaining the vibrancy of rural areas, and generating significant tax and export revenues.

Here, we specify how we work with our nature conservation strategy, and you can read about the forest's development, biodiversity, and management. We are proud of our forests and the forestry management methods we have developed into what they are today. We continue to evolve as we gain new knowledge. With the force of the forest, we contribute to a sustainable future.

Our forest, a 10,000 year history



We need to look back through history in order to understand the way SCA works with forest management, conservation, and biodiversity today. Ice and fire have both played crucial roles for Sweden's forests and the species that inhabit them – and this influences how we shape our forestry.

Our forests are a relatively young ecosystem compared with other ecosystems on Earth. About 10,000 years ago, Sweden was covered by a kilometer-thick ice sheet, and it was only when the ice melted that the forest could begin to emerge. All plant and animal species present in Sweden today migrated here following the last ice age.

Fires and storms shape the forest

Swedish forests remained untouched by humans for a long time. Instead, the forest landscape was shaped by natural disturbances such as wildfires and storms. Almost all Swedish forests have been influenced by fires, with many forests burning several times every century. This had a profound impact on the development of the forest and its flora and fauna.

Forest fires determined, for instance, the types of tree species that grew in the forest. Spruces, which have thin bark and branches close to the ground, are not well-adapted to survive fires, so they did not grow very old. Pines, on the other hand, were favored because they are specialists at surviving fires thanks to their thick bark and high branches. This resulted in landscapes dominated by sparse pine forests, with a mix of large and small pines. There were also plenty of deciduous trees, as these regenerate easily after a forest fire.

All species that thrive in bright and sunny environments flourished. Species that benefit from darker and more humid conditions – characteristics of a spruce forest – had a tougher time and had to rely on areas where fires did not gain a foothold.

Upper image: Forest fires have had a decisive impact on the development of Sweden's forests.

Lower image: Many forests looked like this when forest fires were common. The presence of some spruces indicates that it has been quite some time since the last fire.





The forests in northern Sweden were heavily depleted and reforestation was poor at the beginning of the last century, which was one of the reasons for the first Forestry Act in 1903. The picture shows a harvested area in 1935, where the forest was diameter-limit cut in 1876 and 1902.

Fires also ensured that there was plenty of dead wood in the forests, as many trees died when fires swept through. The dead wood provided food and habitats for flora and fauna.

Development of forestry

When people began to use the forest for timber purposes, they did so primarily to meet household consumption needs for firewood, construction timber, etc. But with the growth of iron production during the 17th and 18th centuries, the demand for wood increased. The sawmill industry in northern Sweden began to take shape by the mid-1800s. Saw logs were harvested and floated down large water-courses to the coast. Over time, harvesting advanced farther inland until it reached the most inaccessible forests. By the late 1800s, there were hardly any untouched forests left in northern Sweden.

Selection cutting and selection system

Methods for managing and harvesting forests have varied over time. For a long time, the only trees harvested were those that achieved a

certain thickness and yielded substantial saw logs – practices known as selective cutting (or diameter-limit cutting). It was believed that the forest would regenerate naturally, but this proved to take a very long time. New harvests were also often conducted within just a few decades, resulting in the removal of increasingly slender trees. The forests became sparser and grew poorly.

Selection system cutting – similar to selective cutting – began to be used in the 1800s. With this method, large trees were harvested every ten to twenty years and regeneration occurred naturally. However, the method was not suitable for species such as pine and deciduous trees that require light conditions to establish themselves.

A forest managed with selection system always has trees of all heights and more small trees than large ones. But selection system forestry proved to be ineffective, as timber extraction was often at too high a level or done at too short intervals, which resulted in sparse forests and low growth. Selective cutting and selection system cutting are both now classified as continuous cover forestry.

In addition to these methods, clear-felling began to be adopted in Sweden on a small scale, inspired by Germany.



Timber hauling in Lycksele, 1937. At this time, the trees harvested were primarily those that had achieved a certain thickness and yielded a quantity of saw logs.

Changed conditions for the forest

Another change that occurred during the late 19th century was the development of effective fire-fighting methods, which radically changed the conditions in the forest. Pine and deciduous trees lost their competitive advantage and it becomes unusual with fired razed areas, which are forests that have burned and then self-regenerated with pine and deciduous trees. Spruce, on the other hand, benefited from the change and gradually took over. The rarity of fires also affected everything from insects and birds to herbs, lichens, and mosses.

Forestry Act

In 1903 Sweden established its first modern forestry law, considered the first of its kind in the world. It had become obvious that both prudent use and reforestation were required for the country to maintain the benefits of its forest resource. The law therefore mandated replanting after harvest, a requirement that remains in force today.

Focus on forests that grow well

Continuous cover methods were gradually phased out due to the fact that they deplete forests. After nearly a century of dimensional felling, selection system cutting, and some degree of clear-felling, by the early 1950s a large proportion of forests were basically clear-felled while older forests were sparse and damaged. Research has shown that by the late 1940s, around 40 percent of company- and state-owned forests in southern Norrland had been clear-felled at some point since the early 1900s.

After World War II, clear-felling became the predominant method for harvesting and regenerating forests. This means felling all trees in an area at the same time, followed by regeneration – primarily through planting.

With clear-felling, the forest is managed in a cycle with various phases: from planting to pre-commercial thinning, thinning, and regeneration felling – and then planting again. This optimizes growth in the forest landscape.

SCA and other large forest companies focused initially on harvesting the forests that were sparse and growing poorly. By ensuring that new forests are established quickly, the forest industry secured a reliable and long-term supply of wood raw materials.

During this time and through the late 1980s, clear-felling often resulted in large and completely bare harvested areas, as nearly no trees were left standing. Some clear-felled areas in company- and state-owned forests covered several hundred hectares. The new

forests were rich in timber but poor in variation and comprised mainly of trees of the same age.

New knowledge and new forest policy

In the late 1970s, there was greater awareness that some species are unable to survive forestry methods that result in large bare clear-felled areas. SCA and other forest companies began to take action based on this. They also realized that post-harvest replanting on its own was insufficient, and therefore introduced retention forestry methods, albeit on a small scale.

Increased awareness of environmental issues paved the way for Sweden's new forest policy, which took effect in 1994. The new policy places equal value on wood production and environmental considerations, and that is still the case today.

Research also showed the necessity of leaving some areas unharvested. Accordingly, during the 1990s forest companies began to voluntarily set aside forest areas that were oldest and had the greatest nature conservation value. These voluntary set-asides are not used for wood production.

In the mid-1990s, the first certification systems for Swedish forestry were developed in collaboration with, among others, reindeer husbandry and environmental organizations. SCA conducted biodiversity surveys across its entire forest holdings and continued to set aside forests. We also began conducting prescribed burns to mimic natural conditions.

Since then, we have gradually developed our conservation efforts, keeping pace with new research and emerging knowledge. Today, SCA practices forestry with a long-term perspective, aiming for our forests to be at least as rich in timber, biodiversity, and nature experiences in the future as they are today.



Balancing all values of the forest

A family of four is walking through a lush green forest. In the foreground, a man wearing a green plaid shirt, a green cap, and dark cargo pants is carrying a young child on his shoulders. The child is wearing a red jacket and dark pants. The man is pointing his right hand towards the trees. Behind him, a woman in a blue jacket and a man in a green polo shirt and dark pants are walking. The forest is filled with tall, thin trees and vibrant green foliage, suggesting a healthy and thriving environment.

The forest is one of Sweden's greatest assets and a key driver of the national economy. Forests promote the green transition by replacing fossil-based alternatives with wood-based products. The forest is also a habitat for thousands of species, and provides vast areas for reindeer husbandry, hunting, and outdoor recreation. In our forestry practices we strive to balance all values found in our great forest resource.

Approximately 70 percent of Sweden is covered by forest, so it is no surprise that the forest is significant for our country in many ways. In terms of the economy the forestry industry plays a crucial role. The sector employs around 140,000 people in Sweden and contributes immense value in tax revenue and net exports. The Swedish forest industry creates conditions for people to live, reside, and work throughout Sweden, particularly in rural areas.

The green transition

One topic that has gained importance in recent years is the forest's role in the green transition. Forests benefit the climate in multiple ways. Growing forests sequester carbon dioxide, and the products produced from wood raw materials store carbon throughout their lifespan. Additionally, carbon dioxide emissions are avoided as we replace fossil products with raw materials and energy from the forest.

In order for the forest to deliver maximum societal and climate benefits, it needs to grow well and provide a substantial supply of renewable raw materials.

Other values

But the production of wood raw material must be balanced against all other values present in our forests, including biodiversity. SCA's forests are home to a wealth of flora and fauna – species that are meant to thrive there even in the future. We also adapt our forest management to the reindeer husbandry conducted on our lands. Another important value to preserve is the ancient and cultural remains found in our forests.

Our forests are also a place many nature-loving Swedes enjoy, year-round. The forests offer wonderful nature experiences, great hiking, fishing, and hunting. Many Swedes also forage for berries and mushrooms on our lands, something made possible by Sweden's unique Right of Public Access.

In order to balance all values of the forest, we plan our forest management long-term and across vast geographic areas. In this way, we ensure that the forest continues to be a strong resource for the economy and climate while also safeguarding the other values.

Support to private forest owners

SCA has a close collaboration with private forest owners with forest in northern Sweden. We purchase wood from them and conduct activities such as regeneration harvesting, planting, and pre-commercial thinning. We also inspire forest owners to engage in active and profitable forestry with good nature conservation, and help them balance various values.

We strive to find a good balance between all values of the forest.

Economic values

- Renewable raw materials and products
- Job opportunities
- Positive trade balance
- Investments
- Tax revenue

Social values

- Welfare
- Rural development
- Reindeer husbandry
- Outdoor activities
- Hunting and fishing

Ecological values

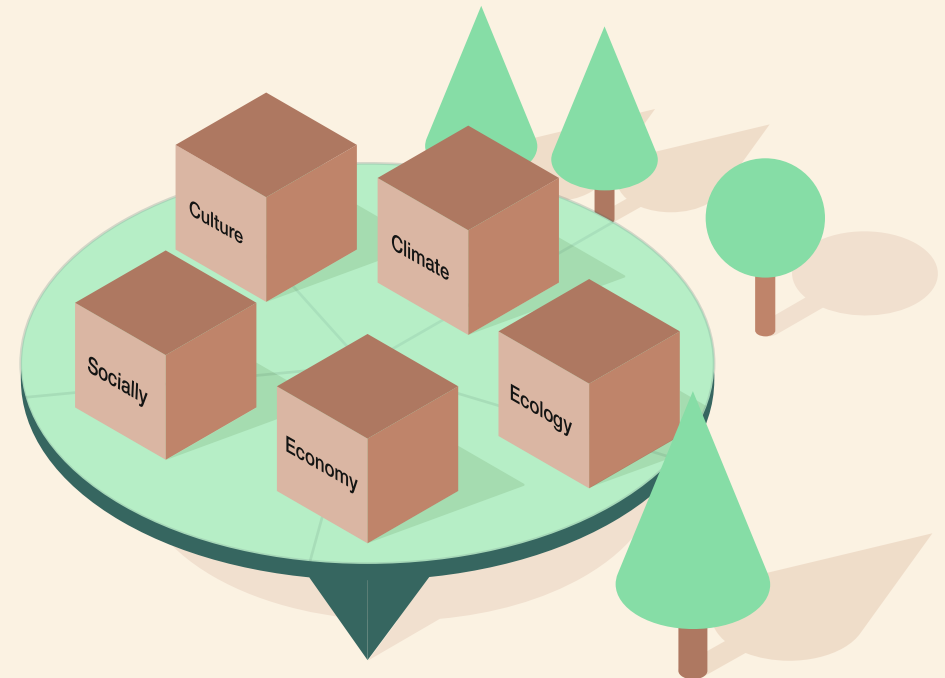
- Biodiversity
- Watercourses and wetlands

Climate values

- Growing forests bind carbon dioxide
- Carbon storage in products
- Substitution – fossil products can be replaced

Cultural values

- Ancient and cultural remains
- Landscape values



Forests of northern Sweden and SCA's forestry

Today, the volume of standing trees on SCA's land is larger than ever. This has been possible thanks to our way of managing the forest over the past 70 years. We manage most of our forests with the clear-felled method, a practice that is both efficient and provides high growth of renewable raw-material. With today's methods, clear-felling can be successfully combined with considerations for biodiversity and other forest values.

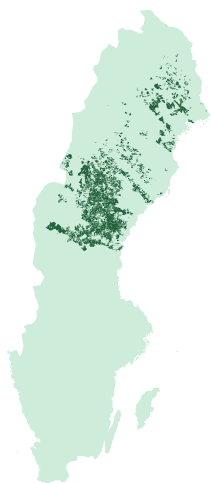
Forests in northern Sweden grow slowly. The significant advantage of this is that the timber quality becomes extraordinary, appreciated by many customers. The downside is that it takes a long time to produce wood raw material. Trees in our forests need to grow for 65 to 120 years before they are ready for harvest operations. Despite the long wait, trees here in the north are considerably smaller in stature at harvest time, compared with those growing in more southerly latitudes.

SCA's forests are also spread across vast geographic areas, which means we need to plan our forest management and harvest operations in a way that is optimal for growth, resources, and logistics.

Efficient forestry

SCA, like most forest owners in Sweden, primarily uses the clear-felling method. This is because it is the most efficient way to manage forests. In the public debate on Swedish forests, continuous cover forestry methods are often highlighted as an alternative. But these methods result in significantly lower growth on most lands.

A compilation of research* indicates that continuous cover methods produce around 20 percent lower growth than traditional clear-felling. This would result in an equally substantial drop in carbon capture from



SCA is Sweden's largest private forest owner, with 2.6 million hectares of forest land.



the atmosphere and a reduced supply of climate-smart products from the forest. If all forests currently managed primarily with clear-felling were to be converted to continuous cover methods, growth would decrease more than 20 percent during the transition phase.

One of the main reasons growth is lower with continuous cover methods is that these are based on natural regeneration. This results in less reliable regeneration and fails to capitalize on the benefits gained by planting improved seedlings.

Improved seedlings grow up to 25 percent better than naturally regenerated seedlings. They also have higher wood quality and better resistance to various diseases. Additionally, these seedlings are better equipped to withstand climate change. The climate is changing so rapidly that trees do not have time to adapt naturally; we support them through the selection we make. This is crucial to ensure that they are prepared for the climate conditions expected in a few decades.

* Hannerz, M., Arnesson Ceder, L., Eriksson, A., & Lundmark, T. Forests and Climate – What does science tell? Report Forest 2024:1. Version 2. Swedish University of Agricultural Sciences.



Previously, harvested areas often covered several hundred hectares and were virtually bare. The image shows a harvested area in the 1970s.



Today, a regeneration area on SCA land averages less than six hectares. Nature conservation management is standard practice; e.g., leaving groups of trees, and buffer zones. Forests with high nature conservation values are not harvested at all.

Continuous cover methods – a complement

Although SCA does not view continuous cover methods as a main alternative in our forestry, they are a good complement in selected areas. We use continuous cover methods primarily in areas where we are focused on developing biodiversity or where we want to shape beautiful forests that are pleasant to visit. Continuous cover methods are excellent for these purposes. However, if we were to transition entirely to continuous cover methods, our wood production – and consequently our climate benefit – would be dramatically reduced.

No large bare areas

Our use of the clear-felling method does not mean we create large bare areas. Nowadays, regeneration areas are significantly smaller

than they used to be. SCA's regeneration areas average less than six hectares. We also leave 10–15 percent as nature conservation.

In combination with our other consideration measures – such as leaving forests to develop freely and working proactively to promote various habitats – the clear-felling method works very well alongside biodiversity preservation. Clear-felling is also beneficial for certain species, as it somewhat resembles the fire-razed areas that historically characterized large areas of the forest. This applies mainly to species that depend on disturbances and thrive in bright, open environments.



The perpetual forestry ecocycle

Clear-felling involves managing the forest in a perpetual cycle, with new forests growing when mature forests are harvested. The rotation period is between 65 and 120 years. During this time, we take several measures to ensure that the forest grows well and produces high-quality timber.

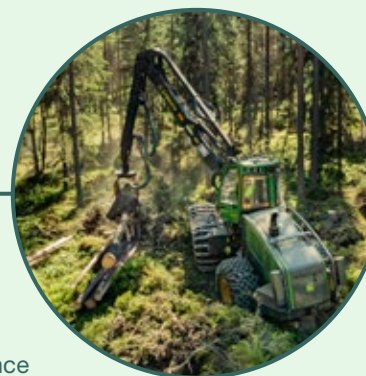
In many ways, forestry resembles agriculture: We sow or plant, nurture what grows, and harvest when the time is right. The major difference is the aspect of time. Agricultural crops can often be harvested within a few months, while forestry needs to wait significantly longer before trees are ready for harvest.



We always plan carefully before a regeneration harvest.

Regeneration harvest, 65–120 years

The forest is ripe for harvest when it is between 65 and 120 years old. Prior to a regeneration harvest, we prepare very carefully and plan for silvicultural and environmental measures.



The cycle is complete. After 65–120 years, it is once again time for regeneration felling. The perpetual cycle begins again.



Fertilization

In suitable areas, fertilization is an efficient and profitable way to help the forest grow faster.

Soil scarification, 0–2 years

After harvesting, we prepare the soil for the new forest to grow. Soil scarification creates a better growth environment for the seedlings.



Planting, 2–3 years

It is then time to establish the next generation of forest. There are several ways to do this, but we most often choose to plant, as it is the most efficient method. We plant two to three new trees for every tree we harvest.



Thinning, 40 years

When the forest is around 40 years old, it is time for thinning. We remove weaker trees of poorer quality and leave the finest stems. The trees left standing receive more light, nutrients, and water and continue growing to produce more valuable timber. We generally thin once or twice.



Pre-commercial thinning, 10 years

When the forest is about 10 years old, it is usually time for pre-commercial thinning. Some stems are removed, and those that are left have better opportunities to grow. It is similar to thinning a carrot field.



Our tree nurseries

Establishing new forests after harvesting is crucial for forestry. At SCA's tree nursery operations, NorrPlant, we lay the foundation for the next generation of forests. Each year, over 100 million seedlings see the light of day at our own tree nurseries.

The seedlings cultivated in our two nurseries grow significantly better than trees that have regenerated naturally in the forest. This is because the forestry sector has, for several decades, selected and propagated the trees that grow the best, also resulting in seedlings that are more resistant to various diseases.

About half of the seedlings we cultivate are used for regeneration in our own forests, with the rest sold to other forest owners throughout Sweden. Roughly one in four seedlings planted in Sweden comes from SCA's tree nurseries.

The Bogrundet tree nursery is the world's largest nursery for forest seedlings. Since the early 1970s, SCA has planted over two billion seedlings in its own forests.



More timber than ever

We began measuring our forests systematically in 1947, when we conducted our first company forest inventory. Since then, we have regularly made new inventories and in connection with that, we also make harvesting calculations. These are forecasts of SCA's sustainable harvesting levels over a hundred years' time.

Around year 2050, a century counting from 1947, we will be able to double the standing timber volume on our lands. At the same time, our most recent harvesting calculations (performed in 2020) show that we will be able to triple our sustainable harvesting level.

The doubling of the timber stock is the result of our active forest management. For every tree harvested, we plant two to three new ones, and the seedlings are adapted to the area's conditions to maximize growth. Other important measures include timely pre-commercial thinning and thinning. Additionally, we fertilize certain forests and plant fastgrowing contorta pine on suitable sites.

We have never had so much growing timber stock than we have now. And with our active forest management, it will continue to grow.

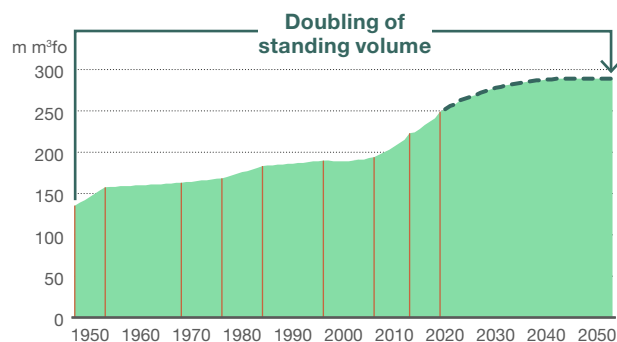
No deforestation in Sweden

Deforestation involves cutting forests so the land can be used for other purposes, such as buildings or agriculture. Today, this mainly occurs in the tropics. Deforestation is not a problem in Sweden. Since 1903, we have been required by law to always replant forests after harvesting.



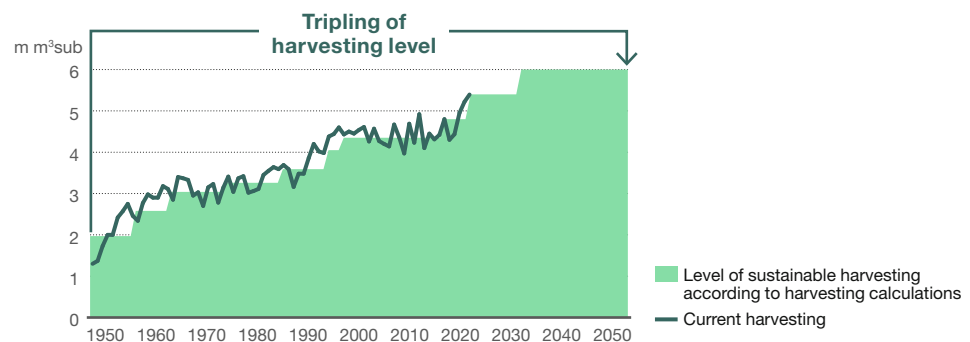
Young growing forest almost ready for pre-commercial thinning. In the young forest, we have left conservation trees in the area. Close by is an area with an older forest.

Standing timber volume in SCA's forests in Sweden (million m³fo)



SCA has never had as much wood as it does now, and the standing volume is expected to grow over the coming decades. The red lines show inventories conducted by SCA. The figures are forecasted from 2020 according to the latest inventory.

Harvesting in SCA's forests in Sweden (million m³sub)



Good forest management has gradually increased the sustainable harvesting level since the late 1940s. Over the next 10–20 years, it is expected to be able to increase even more. The graph is based on the most recent harvesting calculations performed in 2020.



Forestry governed by extensive regulatory framework

Our forestry is governed by an extensive regulatory framework. The Swedish Forestry Act, the Environmental Code, and legislation on species protection form the legal basis for forestry activities. Additionally, all of our forestry operations are certified in accordance with responsible forestry standards. We also adhere to a range of regulations, directives, and internal control documents – not least our nature conservation strategy, supplemented with guidelines and detailed instructions. Our work is monitored by independent auditors and through our own systematic follow-ups.

Certified products

In order for us, and our customers, to sell certified products from responsibly managed forests, the entire chain – from forest to finished product – needs to be traceable. This chain is also monitored by independent auditors.

Secure raw material purchases

Almost all wood raw material used in our industries and sawmills comes from northern Sweden, from our own forests and from private forest owners from whom we purchase wood. We also import a small amount of wood from countries such as Finland, Estonia, Latvia, and Lithuania.

We have explicit guidelines for the raw material we purchase. All wood must be certified or sourced from controlled origins. This means that we never buy timber that has been illegally harvested, originates from forests with high conservation values, or comes from harvests that can contribute to deforestation.

You can find our certificates at [sca.com/certificates](https://www.sca.com/certificates).

Entire tree is used

SCA uses every part of the tree, ensuring that nothing goes to waste. The most valuable part is processed into solid wood products, while other parts become pulp, packaging paper, biofuels, and other sustainable products.

- As much of the tree as possible is processed into solid wood products at our sawmills. Each log is cut optimally – every millimeter counts. Logs are transformed into beautiful flooring, durable outdoor panels, sturdy building studs, and many other products.
- The parts of the trees that cannot be turned into solid wood products are also optimally utilized. They become pulp used in paper, packaging, and hygiene and other products.
- Residual streams and by-products from our production also become valuable products for society's green transition. They are converted into renewable energy, liquid biofuels, and green chemicals.

By efficiently utilizing the entire tree, we can conserve forest resources and contribute with as many renewable and climate-smart raw materials as possible to society.



Products from the forest have their given place in our everyday lives.

Fresh and recycled fiber are both needed

Wood fibers can be reused many times. But after many reuses they become too weak for producing packaging, paper and other products, so new fresh fiber flows are always needed. Some food packaging and hygiene products can only use fresh fibers in their production.

A lush forest scene with a moss-covered hillside and tall trees. The foreground is dominated by a steep, moss-covered slope with various green plants and ferns. In the background, tall, thin trees stand against a bright sky. The overall atmosphere is vibrant and natural.

Nature consideration and conservation – for richer forests

To safeguard biodiversity, the forest needs to have a variety of habitats. We have an entire palette of tools to ensure this. For example, we implement extensive nature consideration when harvesting, take proactive measures for different species, and leave voluntary set-asides that can develop freely. Follow-ups show that our work is yielding results. Indicators for biodiversity have increased between 25 and 90 percent since the late 1990s.

Processes in the forest take time. It takes around a hundred years for a tree to grow and be ready for harvesting, and many other natural processes take even longer. So when we plan our forest management and nature conservation efforts, we do so from a perspective spanning a century or more.

Another important factor is that we plan based on a specific area's local conditions, as well as requirements and conditions based on a broader landscape perspective. This is called landscape ecological planning and helps us take appropriate measures in the right areas.

A broad palette of measures

In our landscape ecological planning, we identify the forests that have the highest nature conservation values. These include, for example, old forests and forests with a large proportion of deciduous trees or abundant dead wood. We then adapt our forestry and conservation considerations based on the conditions present in each forest area and apply various tools from our nature conservation palette. Our approach is summarized in our nature conservation strategy.

30 percent for conservation purposes

In our nature conservation strategy, we specify how we work with consideration and what kind of conservation measures we implement. Over 20 percent of our productive forest land is left as voluntary set-asides, managed with combined targets, adapted retention or included in the basic retention we leave during harvesting, viewed over the forest's entire life cycle. An additional 10 percent of our forest land is exempt from forestry due to being low productive, meaning it doesn't produce much timber.

- Approximately 7% are voluntary set-asides
- 6% are areas where we use combined targets or adapted retention. Here, we can preserve habitats while also harvest some timber.
- 10–15% is left as basic retention during harvesting
- 10% is land with low timber production (low-productive forest land) where we do not conduct forestry

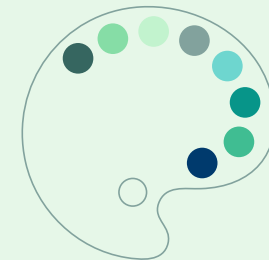
SCA's nature conservation strategy

SCA's goal is to actively support biodiversity by conserving, developing, and restoring prioritized habitats for selected species. We achieve this by combining the high level of competence among employees with long-term and diverse forestry methods in which nature conservation is a key consideration in all measures taken.

We view the forest's values from a landscape perspective and work resource-efficiently to balance biodiversity, climate benefits, and wood production. Through collaboration with authorities, research institutes, and other stakeholders, and by inspiring private forest owners towards active nature conservation, we help strengthen the forest's values today and for future generations.



SCA's nature conservation palette



- Basic retention
- Voluntary set-asides
- Combined targets
- Adapted retention
- Conservation areas
- Targeted and active measures
- Foster values on low-productive forest land
- Protect watercourses and wetlands



Leaving groups of trees in retention harvest is important in order to create variation in the new forest.

Basic retention in all activities

Regardless of the forestry measures we utilize, we always take into account biodiversity, cultural environments, and outdoor activities – we call this environmental consideration or basic retention. Basic retention works well in forests with lower nature conservation values, which we manage in order to produce as much wood as possible. Research* shows that basic retention makes a major difference to biodiversity and that many species thrive with this.

With today’s forestry management, regeneration harvesting does not result in large clear-felled areas. The areas are smaller, and we always leave around 10–15 percent. For example, we leave groups of trees that further break up the bare appearance of the regeneration area, and we leave buffer zones with trees along mires and water-courses. We also do not harvest forests growing on rocky slopes or in ravines, and we leave standing and lying dead wood. Because dead wood is important for many species, we also create new deadwood in the form of high stumps. See pages 23 and 24 for additional examples of nature consideration.

Protecting ancient and other cultural remains is another important aspect of forest management. These remains – which include for example trapping pits, paths, house foundations, and cairns – are traces from previous generations, and we have a great responsibility to preserve them.

* The Smart Tree Retention research program has highlighted various aspects of nature consideration. Read more at slu.se. See also “Biodiversity in the Swedish Forest – Condition, Trends, and Environmental Work” report by Mats Hannerz and Per Simonsson.

We also apply consideration measures in areas used for recreation and outdoor activities. This applies to areas such as those that include paths, hiking trails, and popular excursion destinations.

Thorough planning

Planning is crucial for effective nature consideration. The most extensive planning is done prior to regeneration harvest. Our well-trained planners thoroughly assess the forest to determine what nature consideration should be taken. They then provide instructions to the harvest teams to inform them on how to conduct the harvesting.

Our harvest teams also have a major responsibility in shaping some of the nature consideration. They decide while harvesting, for example, which trees to cut into high stumps and which groups of trees to leave standing. Leaving groups of trees is important to create variation in the new, emerging forest.



We manage our forests to ensure they are at least as rich in biodiversity, nature experiences and timber in the future as they are today.

Basic retention – a broad range of considerations

Our basic retention comprises many types of measures to benefit species with different needs. Some species benefit directly, while others experience positive effects over time. Some examples of the basic retention we take:

Leave groups of trees standing

By preserving groups of trees, we create a sanctuary for many species from the old forest, helping them survive until the new forest has grown.

Preserve conservation patches

By preserving conservation patches, we leave important habitats for many species waiting for the new forest to grow. These patches may consist of forests older than the surrounding forest, or sensitive environments like wetland forests or forests near rocky slopes.

Leave buffer zones

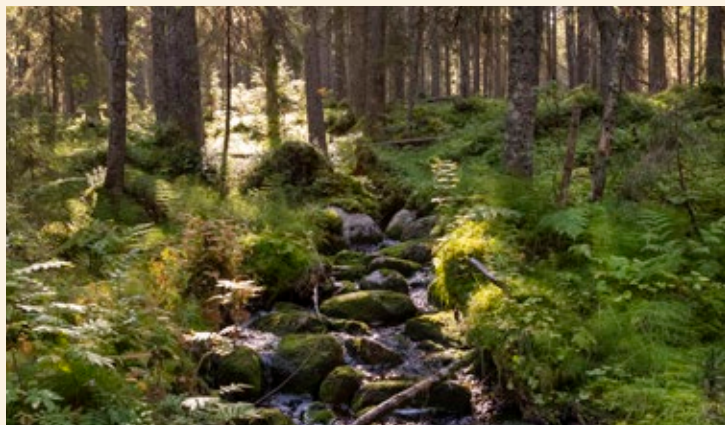
Buffer zones is one example of conservation patches. By leaving forested buffer zones around lakes, watercourses, and mires, we protect aquatic flora and fauna and species that thrive in the moist forest environment.



High stump created from birch tree.



Old pine with fissured bark.



Buffer zone along a stream.

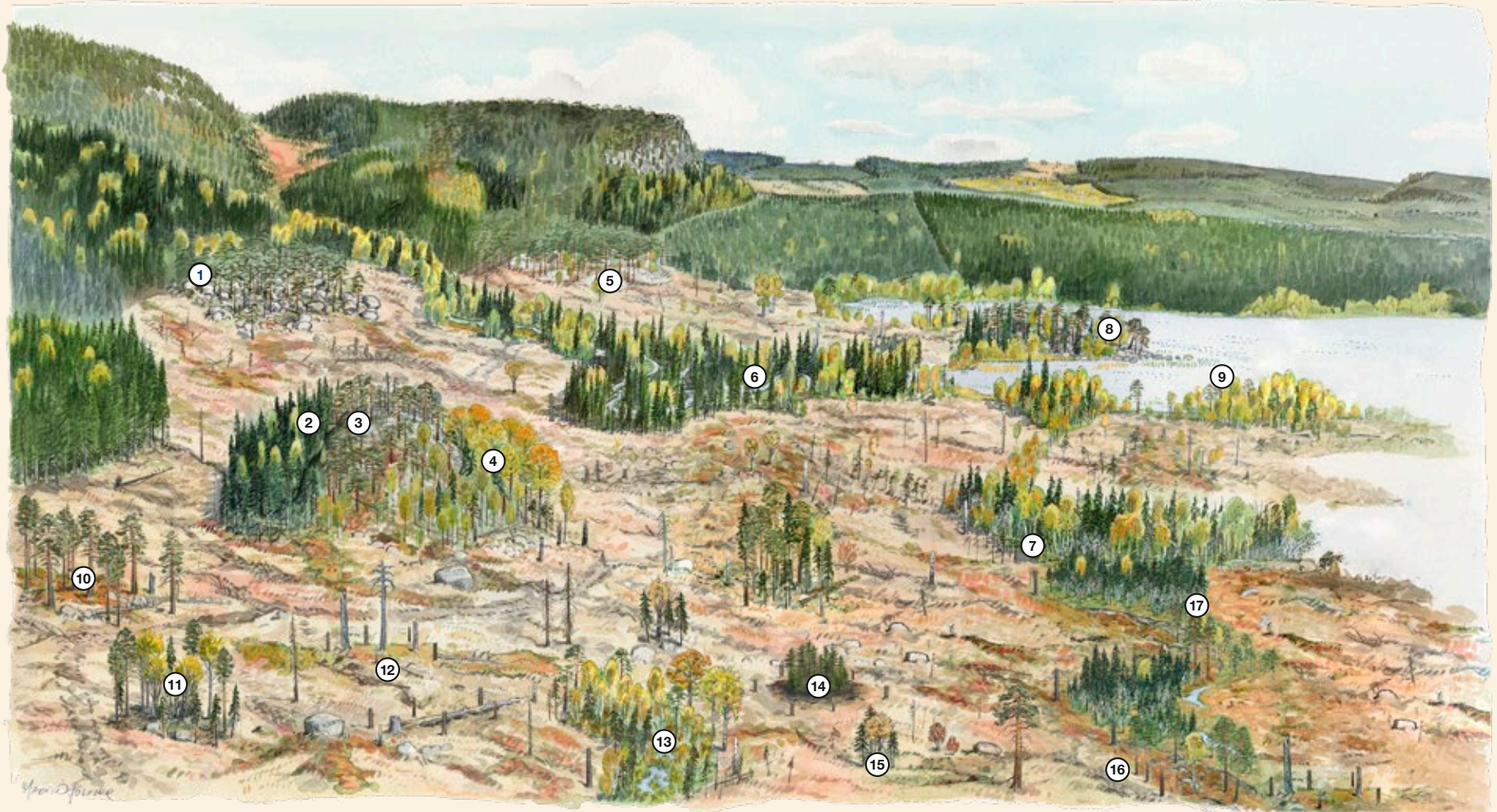
Preserve and create dead wood

It is crucial to have a wide variety of dead wood in the forest, as many species have specific requirements for this habitat. Some, for example, prefer sun-exposed wood, while others prefer shaded wood. A single dead tree can serve as a habitat for hundreds of different species before it fully decomposes. Creating high stumps is an excellent way to increase the amount of dead wood in the forest.

Preserve old pines

Pine trees can nurture many species for more than 1,000 years. They can live for several hundred years, and then remain standing as dead trees for a very long time. Once they fall they can remain on the ground for many hundred years before finally decomposing.

Examples of basic retention during regeneration harvesting



① Boulder area with pine, aspen, and dead trees

② Rocky slope

③ Rocky outcrops*

④ Aspen tree group

⑤ Area with emerging bedrock*

⑥ Buffer zone adjacent to small stream

⑦ Waterlogged forest

⑧ Headland with old pines

⑨ Buffer zone adjacent to lake

⑩ Tree group with conservation trees;
e.g., very thick or old trees

⑪ Sallow trees with wood fungus

⑫ Naturally dead trees (standing and lying)
and high stumps

⑬ Wet hollow (hollow with wetland forest)

⑭ Tree group

⑮ Sallow with the lichen *Lobaria pulmonaria*

⑯ Artificially created high stumps

⑰ Buffer zone adjacent to mire

* Forest land that produces very little wood and is therefore not managed.

Other measures in the conservation palette

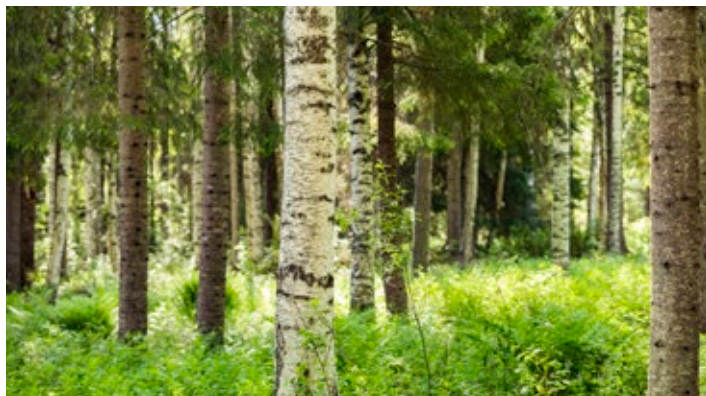
In forests with high nature conservation values and areas with species that do not thrive with basic retention, we use other tools in our conservation palette.

Voluntary set-asides

We leave forests with the highest nature conservation values as voluntary set-asides. These forests are either left to develop freely or managed only to promote biodiversity. For example, we may carry out prescribed forest burnings or measures that favour habitats with deciduous trees. Our ambition is to allocate approximately seven percent of our lands as voluntary set-asides.

Combined targets

In forests with lower conservation values, we can combine forestry and a limited harvest with measures that preserve or develop nature conservation values. We refer to these as forests with combined targets, and they are managed with continuous cover methods. The goal is primarily to preserve conservation values.



Areas with both deciduous and spruce trees can be suitable for combined targets. We can harvest some spruce and thus promote the area's conservation values while also harvesting some timber.



Selection system is an example of a continuous cover forestry method, primarily used in spruce forests. The forest character is maintained, as only the largest trees are harvested. The logging trails used by forest machines are barely visible.

Adapted retention

In some forest used for producing timber, we work with adapted retention, a consideration that goes beyond our basic retention. In these areas we adapt our forestry management to preserve or develop conservation values while also harvesting some timber.

Our measures are often made to strengthen the conservation patches we set aside for sensitive species and we save additional scattered trees within the area to maintain tree continuity. We also promote deciduous forests by preserving canopies of older deciduous trees, allowing a new generation of deciduous trees to establish and grow beneath these canopies.



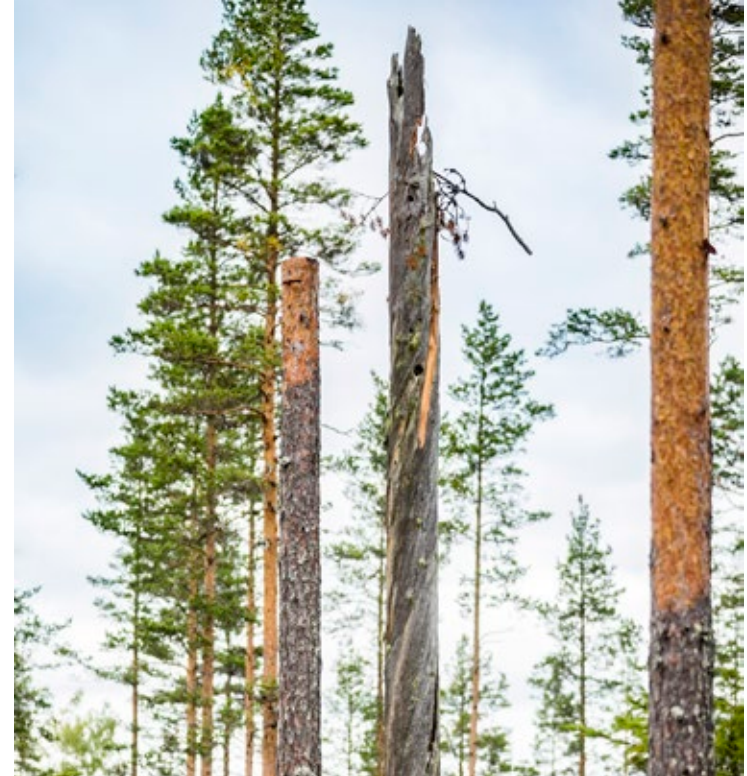
Conservation areas cover approximately 15 percent of SCA's land holdings.

Active measures

We carry out targeted measures to safeguard species that require more active management. For some species, the basic retention we apply in our forestry operations is not sufficient, and they also do not thrive in forests that are left untouched. Instead, they depend on active measures to ensure that their habitats remain.

This is related to the historical nature of the forest. In the past, forest fires and other natural disturbances were common, and animals and plants adapted accordingly. Carrying out prescribed burnings and other measures that imitates fires and other natural disturbances are therefore central to our efforts to create the right habitats for various species.

Creating dead wood is also an important measure. When fires shaped the forest landscape, there was significantly more dead wood, and many species depend on it. To benefit these species, we leave dead trees, both standing and those lying on the ground. We always create dead wood during harvesting operations, and we can also increase the amount of dead wood in areas where specific species require it.



The amount of dead wood is one of the most crucial factors for biodiversity in the forest landscape. We therefore actively create dead wood.

Conservation areas

To maximize the benefits of our conservation measures, we have designated what we call conservation areas. These are larger forest areas with a concentration of valuable habitats and species. In these areas, we apply higher conservation ambitions than in the rest of the forest landscape. We focus a significant share of our efforts here, enabling us to implement the right measures in the right places.

The consideration areas consist of a mosaic of important habitats and managed forests. We adapt both our conservation efforts and our forestry operations to preserve, develop and restore nature conservation values. An important part is also to increase variation and strengthen green infrastructure — in other words, a network of nature that enables species to disperse across the landscape. We may also restore forests to create additional habitats.

Each consideration area covers at least 50 hectares, and many extend over several hundred hectares. Together, they account for approximately 15 percent of our total land holdings. The areas may have different focuses. For example, SCA's Conservation Parks are located within various consideration areas, as are our Action Plan (ÅGP) landscapes.

Conservation Parks and ÅGP landscapes

In our five Conservation Parks, at least half of the forest is managed with the aim of promoting nature, cultural and social values. All parks offer excellent opportunities for recreation and nature experiences. We collaborate with external stakeholders as well as researchers who wish to conduct studies and forestry experiments that cannot be carried out in other forests.

Our ten ÅGP landscapes consist of important habitats and includes areas of production forest. ÅGP stands for Action Programmes for endangered species and habitats, developed by the Swedish Environmental Protection Agency and the Swedish Agency for Marine and Water Management. We participate in several action programmes to support management-dependent ÅGP species that require more specific and active measures to survive.

The measures primarily consist of conservation management, such as conducting prescribed burnings, creating new dead wood and restoring watercourses. We may also perform restoration efforts to increase the extent of habitats on which different species depend. This may involve creating deciduous-dominated forests or pine forests with trees of all ages.

We create new habitats and promote higher conservation values in younger forests by increasing the proportion of deciduous trees and developing future conservation trees from pine during pre-commercial thinning and thinning operations. In this way, we improve conditions for species over the long term.



The lichen *Letharia vulpina* is one of SCA's Species Commitment.



SCA's Species Commitment and habitats

SCA and the Swedish University of Agricultural Sciences (SLU) have jointly conducted a thorough analysis of the Swedish Red List, which assesses the status of species in Sweden. A species is red-listed if its numbers decrease significantly over a short period, if it is rare, or if it has a very limited distribution area.

Approximately 30,000 species live in Sweden's forests. We have identified that 203 of these species are red-listed, exist on our land holdings, and are negatively affected by various forestry activities. This includes certain fungi, mosses, lichens, insects, and birds. As a major forest owner in northern Sweden, we have a special responsibility for these species, and we therefore refer to them as our Species Commitment. Several of these species are also ÅGP species.

We have also identified 11 habitats in which the Species Commitment occur. These include, for example, forests rich in deciduous trees and dead wood, wetland and stream forests, and open pine forests with dead wood in various stages of decomposition. Active measures are often required to preserve, develop and restore these habitats. By working with them, we make our conservation efforts even more effective.

When we support our Species Commitment, we also benefit many species with lower habitat requirements. In other words, it will be good for many.

Examples of Species Commitment and habitats



Black woodpecker

The black woodpecker (*Dryocopus martius*) is Sweden's largest woodpecker. It inhabits coniferous or mixed forests, preferably those that are a bit open and have plenty of old trees and dead wood. Ideally, it chooses a tall, thick aspen as its nesting tree, but pine is also suitable. The black woodpecker can make its nesting hole in living trees, which not all woodpeckers can do.

Old nests are used by other birds and bats. The black woodpecker is therefore an important keystone species. To support this bird, we need to ensure that there are old forests in the landscape and thick pines and aspens suitable as nesting trees in managed forests.

Habitat

Old coniferous forests where there have always been living trees and/or plenty of dead wood.



Haploporus odorus

Haploporus odorus is a wood fungus that emits a distinct anise scent in humid weather. It grows almost exclusively on living, large-grown willows. We can ensure preservation of this wood fungus habitat by preserving forests that have many old willows, leaving all willows in place during harvesting and thinning, and protecting young willows during pre-commercial thinning.

Habitat

Forests with plenty of deciduous trees of various ages, with a significant presence of willow.

Examples of active measures



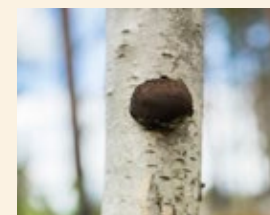
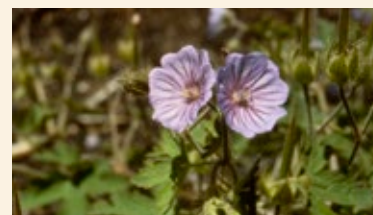
Partial debarking of pines

Many pines were damaged in the past, when forests burned more frequently than they do today. The fire damage caused the trees to grow slowly and become impregnated with resin, which meant they developed a special kind of wood. Many species of wood fungi, insects, and lichens are adapted to this type of wood and struggle in today's forests where fires are effectively extinguished.

To assist these species, we partially debark some pines. Partial debarking involves removing part of the bark to mimic the damage that pines sustain during fires, causing the wood to become resin-soaked and grow slowly. This type of wood can persist for centuries. Partially debarking pines is an alternative to carrying out prescribed burns.



Partially debarked pines serve as habitats for beetles like the *Stephanopachys linearis*, which thrives at the border between dead and living wood.



Geranium bohemicum and *Daldinia loculata* are two species that depend on fire and therefore benefit from prescribed burns.

Prescribed burns bring the forest to life

A lot of the flora and fauna in our forests are adapted to life in forests that occasionally burn. Prescribed burns are therefore one of our most important conservation measures. By burning, we create habitats for species that benefit from or depend on fire-influenced forests.

Examples of species that benefit from prescribed burns include the lichen *Hypocenomyce anthracophila*, which exists on burnt stumps, and *Geranium bohemicum*, with seeds that can lie dormant in the soil for over 100 years, only germinating after exposure to heat from a fire. Various beetles and other insects also arrive after a fire to lay eggs in damaged or dead wood. Certain soil fungi also benefit from fire, including *Daldinia loculata*, which resembles a black ping-pong ball and grows on burnt birch trees.

Other measures to promote nature conservation values

Our nature conservation palette also includes a range of other measures to preserve, develop, and restore conservation values on different land types.

Low-production forest land

On forest lands with low timber production, known as forest impediments, we do not conduct any forestry. However, we can take active measures to benefit conservation values. For example, we can partial debark some pines to create a special type of wood that is valuable for certain species.

Watercourses and wetlands

We work to protect and restore watercourses and to rewet wetlands, both independently and in collaboration with others. Wetlands – such as mires, bogs, and marshes – function as nature’s own filter and play a vital role in the landscape. They are also important for biodiversity.



SCA undertakes extensive efforts to restore wetlands that have been previously drained.

SCA goes a step further

Our nature conservation commitments often exceed both legal and certification requirements, see examples to the right. For example, we allocate a larger share of land than required for voluntary set-asides.

The FSC standard states that at least 5% is set aside as voluntary set-asides and together with forests managed with combined targets, these shall constitute at least 10%. Most of SCA's combined targets meet the requirements of the FSC standard and together with SCA's voluntary set-asides they constitute at least 10%.

Commitment	SCA	Legal requirement	PEFC	FSC
Voluntary set-asides	approx. 7%	No	5%	5%
Preserve and manage forests with combined targets*	6%	No	No	5%
Active and targeted conservation measures	Yes	No	No	No
Restore wetlands and watercourses	Yes	No	No	No

* With combined targets, we harvest some timber while also preserving and developing conservation values.

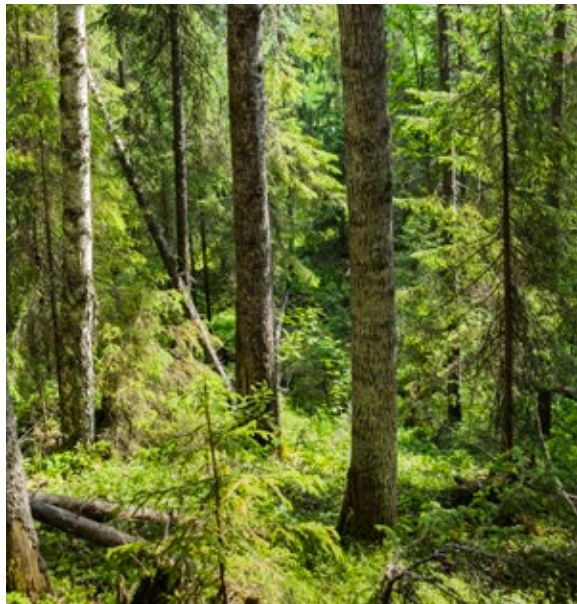
Percentage indicates proportion of productive forest land.

Tree species guides choice of measures

The best method for preserving and developing nature conservation values depends entirely on the values and type of forest involved. Pine, spruce, and deciduous trees like birch and aspen are the main trees that grow in northern Sweden. Different measures are required for different types of trees to develop conservation values and support various species.

Deciduous forests

Species associated with deciduous forests require a lot of light and warmth. Nature values often benefit by harvesting some trees, especially spruce, to ensure that the species' habitats are not lost. For deciduous trees to establish themselves, soil disturbance, such as fire or soil scarification, is absolutely necessary.



Pine forests

Many species that thrive in pine forests also require lots of light and warmth. They often benefit from the harvesting of some timber, especially spruce. Without intervention, spruce will eventually dominate and existing conservation values will be lost. Many species associated with pine also benefit from prescribed burns and partial debarking. Like deciduous trees, pines need soil disturbance in order to establish themselves.



Spruce forests

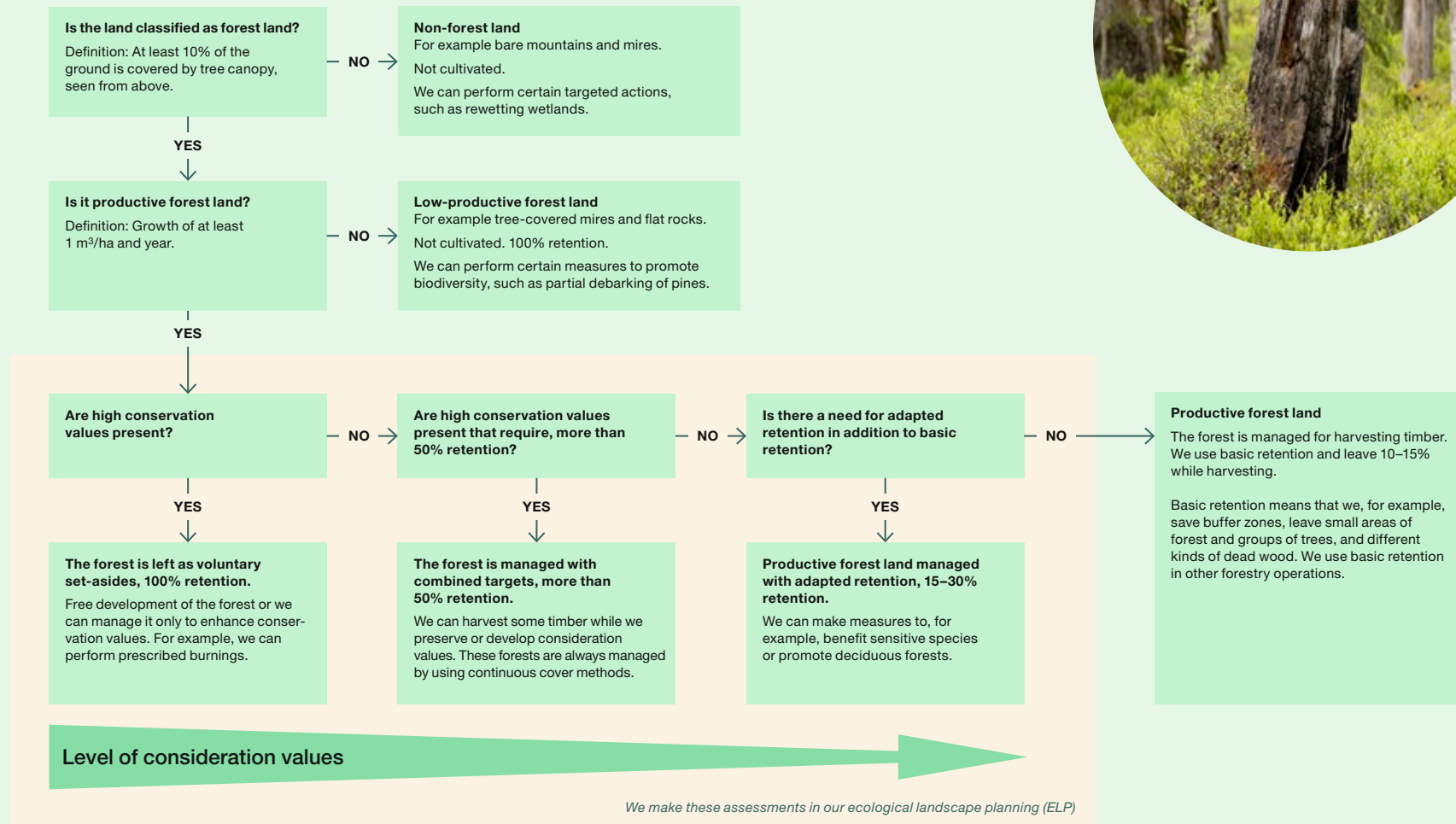
Species living in spruce forests generally prefer shade and long forest continuity, meaning forests that have never been clear-felled. These species want peace and tranquility, with no major disturbances or changes, indicating that spruce forests with high conservation values often benefit from being left to develop freely. Continuous cover methods that maintain the forest atmosphere by selectively removing a small amount of trees can also work.





This is how we determine which consideration to apply

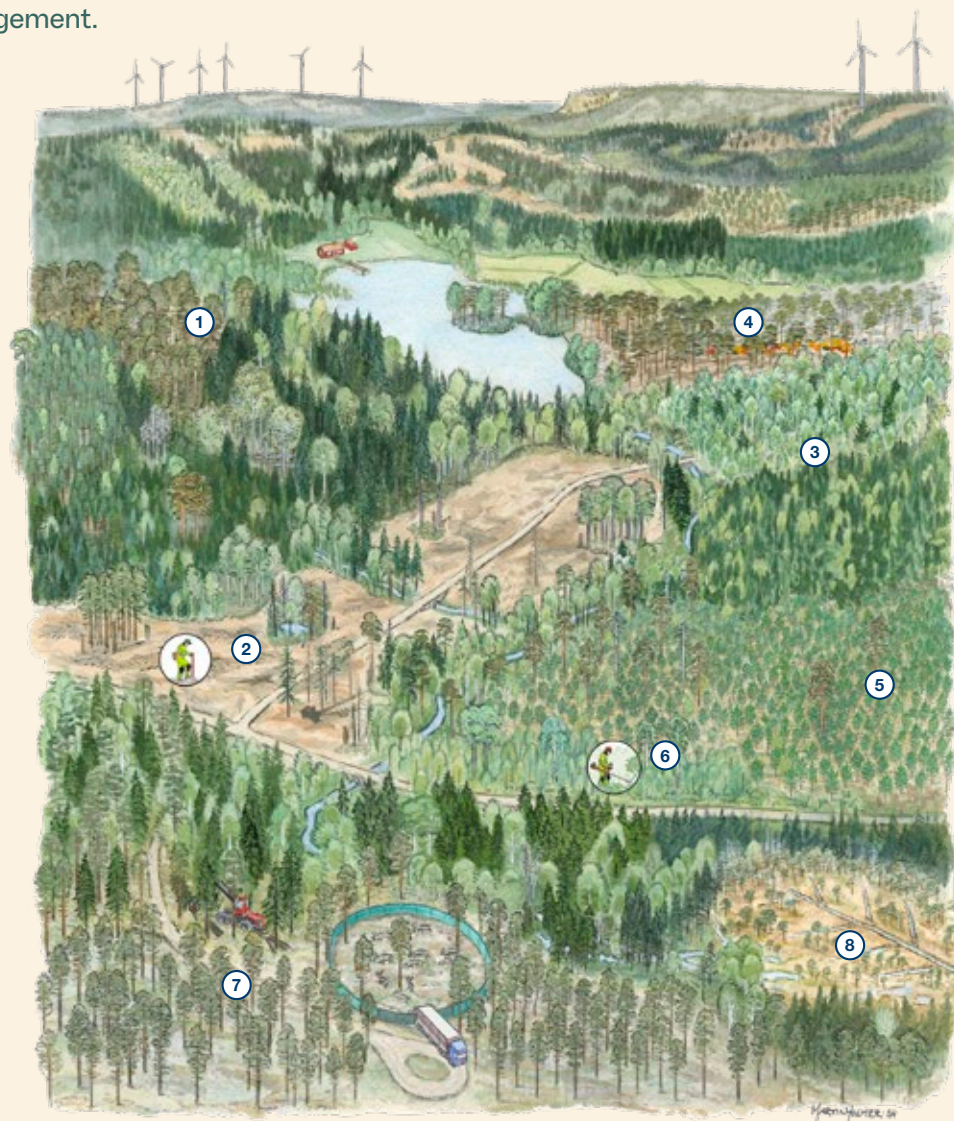
When we perform inventories and assess forests to see what type of forest it is and what nature considerations should be applied, we look at several different factors. For example, we assess the amount and quality of dead wood, the presence of old trees and the proportion of deciduous trees, as well as the presence of endangered species.



Today's forest landscape

What we do in our forests today will have great significance in the future. The illustrations show a forest landscape today and the same landscape in 40 years' time, as it is expected to look as a result of our forest management.

- 1 This pine forest has very high conservation values and is therefore excluded from forestry (a voluntary set-aside). Further down the slope is another set-aside area – an older spruce forest with a significant number of deciduous trees.
- 2 This area has recently undergone regeneration harvesting. We have applied basic retention and left, for example, buffer zones and living and dead older trees standing alone or in groups. We also created high stumps to contribute dead wood, which is vital for many species. Spruce is planted in the moist area and pine in the drier area.
- 3 This area was pre-commercial thinned about ten years ago. When pre-commercial thinning the upper part, we created a deciduous forest by removing spruce and saving the deciduous trees. Deciduous forests are important habitats for many species and provide variation in the forest landscape. In the lower part, we pre-commercial thinned most of the deciduous trees to create a spruce forest with a mixture of broad leaves.
- 4 Forests often burned in the past, and many species are therefore dependent on fire-affected forests. To secure this habitat and species that thrive there, we carry out prescribed burns in selected forests like this one. After burning, we voluntarily set aside the area to promote conservation values.
- 5 This is an area of young contorta pine that we have just pre-commercial thinned. Contorta pine, indigenous to North America, grows quickly. When we harvested the previous forest that grew here, we left some spruce, native pine, and deciduous trees to create variation in the emerging forest. We left various tree species in place when pre-commercial thinning the contorta pine forest.
- 6 Here we have just pre-commercial thinned a young pine forest. The forest was sparse alongside the road, and there were plenty of fine deciduous trees. This led us to pre-commercial thinning most of the conifer trees and create a deciduous forest. We also left a buffer zone along the stream running at the edge of the area.
- 7 Reindeer-herding Sami uses large parts of SCA's lands for grazing. We consult with Sami communities and take their needs into consideration in various ways. Here, we thinned out the forest to support ground lichen, an important food source for reindeer. We also left a screen of seed trees and groups of trees. In the picture you can see a reindeer pen used to gather reindeer for road transport by truck.
- 8 This area was once a wetland but was drained in the 1940s to increase wood production. Now, we are blocking older ditches to recreate the wetland environment. Wetlands act as nature's own filtration system and are important for biodiversity. For some wetlands, the emission of greenhouse gas decrease when the water level rises.



The forest landscape in 40 years



- 1 Older forests that are unaffected by fire, storms, or insects change very little in 40 years. The pine forest has been allowed to develop freely, but eventually interventions will be necessary to prevent spruces from taking over and nature conservation values from disappearing. To preserve conservation values in the spruce forest further down the slope, it is important that the forest remains undisturbed or experiences only slow changes. In this spruce forest, some older trees have begun to die and the forest's growth has come to a halt.
- 2 The forest has grown up and will soon be thinned. The buffer zone and the remaining retention trees create variation in the new forest. There is still some old dead wood left, and new dead wood has been added from the trees left 40 years ago.
- 3 The deciduous forest, now about 60 years old, is becoming ready for harvest. We will harvest with what we call combined targets, which means we will remove some timber while also promoting biodiversity. The spruce forest will be thinned and become ready for harvest in a few decades.
- 4 Some pines that were damaged by but survived the prescribed burn have fire scars (shown in the circle) and have therefore developed the dense, resin-saturated wood that is important for many species. The burn also contributed with an abundance of dead wood. Through natural regeneration, the area has become a fine pine forest with trees of various ages.
- 5 The contorta pine forest is becoming ready for harvest. After harvesting, we can either plant contorta pine again to continue making the most of the species' high growth rate, or we can plant native pine.
- 6 In the pine forest we have begun initial thinning and are retaining deciduous trees to create variation. The retained buffer zone serves, among other things, as a refuge for flora and fauna that appreciate shade and coolness. The deciduous forest closest to the road has already been thinned once, and it will soon be time for further thinning.
- 7 A self-regenerated pine forest has grown up, and the seed trees were removed a decade ago. The pine forest was cleared when the trees were a few meters high to support ground lichen, among other things. Some of the retention trees left during the harvest 40 years ago now have an abundance of hanging lichen. In winter, reindeer feed on lichen that falls from the trees.
- 8 Improvements were seen only a few years after the ditches were blocked. The restoration is beneficial for wading birds and birds stopping over during spring and autumn migrations, as well as insects and amphibians. The wetland has regained its ability to purify water and thereby capture and bind nutrients and heavy metals from surrounding land.

Indicators for biodiversity

Dead wood, older deciduous trees, and mature forests are examples of indicators for biodiversity in the forest landscape. This means that they are critical factors in ensuring a diversity of species. SCA monitors the development of five different indicators on our land holdings over time, and the results are very positive.

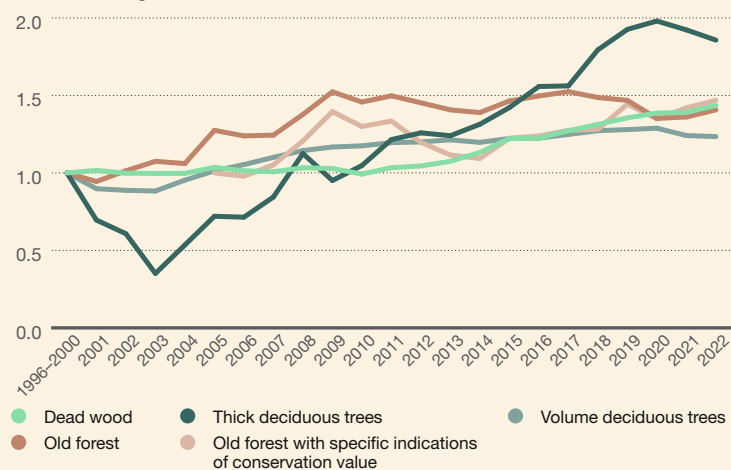
Measuring and evaluating the effects of various efforts we undertake to support biodiversity is a complex process. Most of these efforts are long term and it often takes many years to see the results.

To study developments, we monitor five indicators considered by forestry research to be relevant to biodiversity: dead wood, old (thick) deciduous trees, deciduous trees, old forest, and old forest with specific indications of conservation value.

We track the indicators' development using data from the National Forest Inventory at the Swedish University of Agricultural Sciences (SLU), which publishes data for all of Sweden. They have numerous sample plots on our land.

Indicators for biodiversity – relative change

Index 1 = average 1996–2000



The figures come from SLU's National Forest Assessment and are reported as an average of five-year periods.



The volume of dead wood has increased by approximately 44 percent since the end of the 1990s. This benefits a number of species in our forests.

Investments yield results

As a basis, we chose an average value of the outcome for the years 1996 to 2000. The development since then has been very positive, the various indicators have increased by 25–90 percent. For example, the volume of dead wood in our forests has increased by approximately 44 percent, while the volume of thick deciduous trees has increased by approximately 86 percent.

The positive development is mainly due to our voluntary set-asides, the fact that we take good environmental consideration in all measures and that we have developed our way of managing the forest.

25–90%

This is the extent to which biodiversity indicators have increased.

SCA and reindeer husbandry



Forestry and reindeer husbandry are carried out on the same land, which means that good cooperation is crucial for both parties to function side by side. We therefore place great emphasis on collaboration with reindeer herding communities to identify constructive solutions that minimize the impact of forestry on reindeer management.

The right of the reindeer herding communities to engage in reindeer herding in Sweden is a constitutionally protected right. The Reindeer Husbandry Act states that anyone who is a Sami and a member of a Sami community has the right to use land and water for the maintenance of themselves and their reindeer, on both public and private land. The Reindeer Husbandry Act describes that the reindeer herding area encompasses year-around grazing lands in and winter grazing lands. This reindeer herding area covers approximately 40 percent of Sweden's land area.

There are 51 Sami communities in Sweden, and around 30 of them have the right to conduct reindeer husbandry on SCA's forest holdings. A Sami community is not a physical village but a legal entity – a financial and administrative association – that organizes reindeer husbandry within a specific geographical area.

Collaboration with reindeer husbandry – FPIC

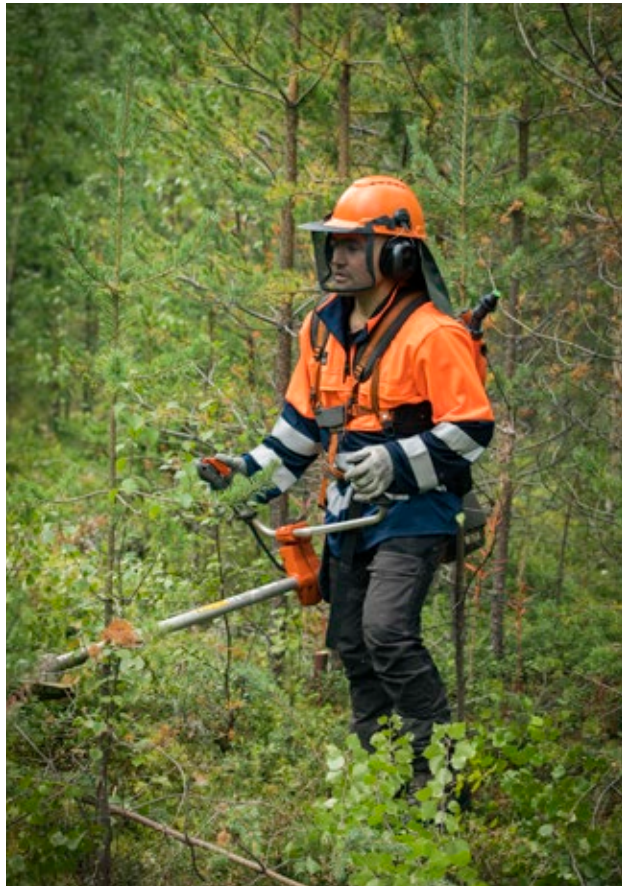
SCA places great care and resources into cooperation with the reindeer husbandry, which is affected by our forestry. We actively contribute to safeguarding and creating the conditions necessary for reindeer husbandry, and we work in accordance with the principle of FPIC (Free, Prior and Informed Consent).

A long-term strategy

SCA has in close collaboration with SSR – the National Union of the Swedish Sami People (the representative organisation for reindeer husbandry and Sami business and community affairs) and Sami communities, developed a strategy that forms the basis of an agreement for long-term collaboration.

A central part of the strategy is to strengthen dialogue and increase understanding of the mutual impacts of forestry and reindeer husbandry, with a clear ambition to coexist and that the land can be used by both SCA and the respective Sami community.

The agreement is based on an enhanced co-planning process in which the Sami communities' knowledge of land use plays a clearer role. Information about important grazing areas and migration routes will, to a greater extent, form the basis for how we plan and carry out our forestry measures. SCA will implement concrete adaptations in the forestry practices and will, among other actions, reduce and redistribute areas planted with contorta pine.

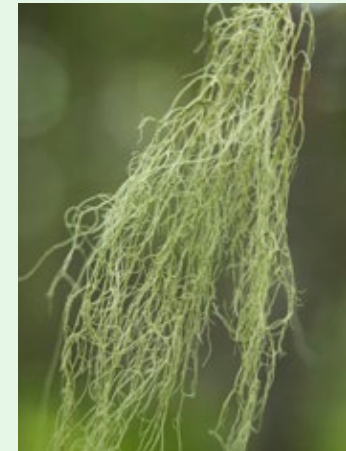


Examples of our adaptations in areas of particularly importance for the reindeer husbandry

- We adapt pre-commercial thinning and thinning to make the forest more open. This benefits ground lichens and improves accessibility for both reindeer and reindeer herders.
- We can use continuous cover methods such as patch cutting or leaving canopies or seed trees. We can also leave places of great importance as voluntary set-asides.
- We adapt our basic retention by saving trees rich in hanging lichens and/or extra-large tree groups in forests with a good supply of hanging lichens. If it is possible, we can also leave extra wide buffer zones, e.g., alongside mires in forests with hanging lichens or near migration routes.
- We use more gentle soil scarification methods that have less impact on the land than traditional methods.
- We ensure that we do not fertilize or burn areas rich in ground lichen.
- We maintain ongoing dialogue with reindeer herding communities on issues such as road plowing and adjustments to harvesting timing in connection with reindeer migration.

In addition to this, reindeer husbandry has free access to SCA's extensive network of forest roads.

Pre-commercial thinning is beneficial for ground lichen. Pre-commercial thinning also makes it easier for reindeer herders to move themselves and the reindeer herd between different grazing areas.



Reindeers eat mainly ground lichens, but also enjoy hanging lichens like Alectoria sarmentosa.



In areas of particular importance for the reindeer husbandry, we adjust our thinning. Often we can perform thinning in right time, so the forest does not become too dense. We can also align the direction of our logging trails to naturally guide the reindeer migration route.

Information exchange

To enable concrete adaptations in the planning process, the affected reindeer herding community needs to describe how they use the landscape and the area proposed for co-planning with SCA. The community must also provide information about areas and sites of particular importance for reindeer husbandry.

Important areas are often more or less contiguous grazing lands with favourable forage conditions, or resting pastures connected to migration routes. Important areas include key working corrals, difficult passages or culturally significant locations.

This information enables us to ensure that all measures affecting reindeer husbandry are planned in detail and managed based on the area's value to the reindeer herding community.

Research and development

The agreement also includes SCA's commitment to invest in competence development regarding how reindeer husbandry is conducted and how forestry measures affect it. We will also collaborate with SSR, the reindeer herding communities, public authorities and research institutions on research initiatives aimed at developing improved methods and implementing new ways of working.



Reindeer husbandry and contorta pine

Forests with contorta pine can affect reindeer husbandry, both by reducing the occurrence of ground lichen and by forest becoming so dense that passage becomes difficult.

Over time, SCA intend to reduce and redistribute the area with contorta pine. In year-round grazing areas and other areas of particular importance to reindeer husbandry, reforestation will instead be carried out using native tree species.

Active forestry benefits the climate

Mitigating global warming is one of the greatest challenges of our time. As a forest company, we are part of the solution. Carbon dioxide is sequestered in the trees growing in our forests and carbon is stored in solid wood products and other forest-based products throughout their lifespan. Products from the forest can also replace fossil-based products and thus prevent carbon emissions.



The UN Climate Convention establishes two approaches to combat climate change: increasing carbon sequestration and reducing fossil emissions. We make a difference in both areas. Each year, SCA provides a climate benefit equivalent to approximately 12 million tons of CO₂e. This corresponds to more than a quarter of Sweden's fossil emissions.

As trees grow, they sequester carbon dioxide, the most significant greenhouse gas in terms of climate impact. We manage our forests to ensure that the standing wood volume increases over time. Our forests help mitigate climate change by binding large quantities of carbon dioxide every year.

Climate benefit of wood products

Forestry provides an even greater climate benefit considering that the products made from forest resources also store carbon. Throughout their lifetime, they store carbon absorbed from the atmosphere by forests in the form of carbon dioxide. Long-lived products – such as solid wood products used for houses, flooring, and furniture – can store carbon for over a century.

Wood products also create possibilities to reduce fossil emissions by replacing products made from fossil materials. Paper can replace plastic, wood can replace steel and concrete, and biofuels derived from pine oil can replace fossil jet fuel. This is instrumental in the phase-out of oil and coal.



Sawn timber products, like this wooden deck, can store carbon for a very long time.



Forest growth is essential to maximize the benefit we provide. Higher growth means more raw material for products that can both store carbon and replace fossil products.

Climate benefits are also crucial for biodiversity. Many species and ecosystems will eventually face serious threat if we fail to halt global warming. This is one of the many aspects we consider when planning our responsible forestry.

Untouched forests increase fossil emissions

Many argue that forests should be left untouched to serve as carbon sinks. But doing so would have direct negative consequences for the climate. If we stop managing forests and are therefore unable to use solid wood to build houses, produce packaging, create fuel, etc. – what would we use instead?

If consumption does not decrease, these products would need to be manufactured from fossil materials. More carbon would be stored in forests, but fossil carbon emissions from other activities would increase. Eventually, carbon dioxide storage in forests would also decrease as older forests grow more slowly and some trees eventually die.

Active forestry is therefore the most climate-smart approach – utilizing forest resources to produce renewable products.



Contorta pine stores a lot of carbon dioxide

Contorta pine (*Pinus contorta*) is a North American tree species that grows 40 percent faster than native pine on equivalent land. Introduced in Sweden in the early 1970s following extensive trials and evaluations, it is now the country's sixth most common tree species. Today, SCA has contorta pine on 15 percent of its productive forest land, which corresponds to approximately 300,000 hectares. Over time, we intend to reduce that area to 270,000 hectares out of consideration for the reindeer husbandry.

Because this tree species captures a lot of carbon dioxide due to its rapid growth rate, it provides major advantages from a climate perspective. It grows 40 percent faster than Swedish pine, corresponding to the absorption of an additional 800,000 tons of carbon dioxide per year – on SCA's lands alone. This high growth rate also means that renewable raw material is more readily available and that we can manufacture more renewable products so that oil and coal can be phased out.

Managed forests provide the greatest benefit

Forests provide the greatest benefit when they both function as carbon sinks and are managed to produce a substantial amount of raw material for renewable products. A comprehensive study* shows that active management is the precise reason that forests bind so much carbon.

Growth is higher in managed forests because the trees are, on average, younger and thus grow more. Further, seedlings that grow faster than naturally regenerated trees are used. And the extensive network of forest roads enables effective extinguishment of forest fires, which helps reduce the loss of sequestered carbon in forests and forest land.

* Peter Högberg et al. "Sustainable boreal forest management – Challenges and opportunities for climate change mitigation". Swedish Forest Agency, Report 2021/11.

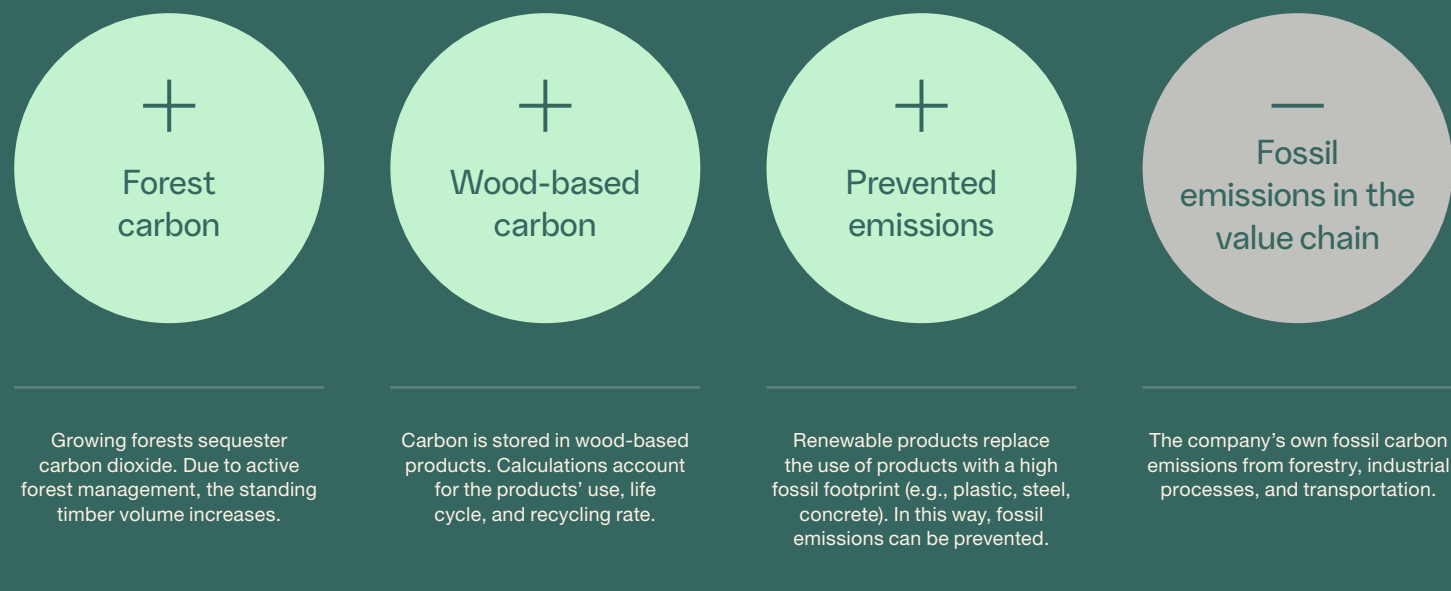


Climate benefits according to ISO Standard

For several years, SCA has reported the company's total climate benefits based on holistic calculations. As of 2025 we follow the new global ISO Standard 13391, adopted by the International Organization for Standardization.

The standard (Wood and wood-based products – Greenhouse gas dynamics; ISO 13391) was developed through international collaboration between the forestry industry and other stakeholders. It enables fair comparisons between individual companies and forestry regions. All calculations within the standard are based on scientific principles.*

We report SCA's climate benefit in our annual report and on [sca.com](https://www.sca.com).



* Calculations are based on, among other things, the Intergovernmental Panel on Climate Change (IPCC), the Greenhouse Gas Protocol, and hundreds of scientific studies.

A photograph of a dense forest of tall, thin trees, likely pines or spruces, with sunlight filtering through the canopy, creating a warm, golden glow. The forest floor is covered in green undergrowth and small trees.

Forestry for the future

The forest is constantly changing – and so is our approach to forest management. Thanks to our skilled employees, new knowledge, digital tools, and technological advances, we can continue developing our forestry.

For Swedish forestry to evolve and adapt to future demands and challenges, we need to harness the opportunities offered by digitalization. SCA is at the forefront in this area. By utilizing AI, advanced data analysis, laser scanning, and other technical solutions, we gain more knowledge about our forests. This helps us improve our forest management and implement the right measures in the right places.

Our nature conservation work also becomes more effective as new research emerges. New knowledge about the impact of our forestry on habitats and SCA's Species Commitment is vital for improving our forest management and conservation efforts and enables us to continuously refine our methods.

New research and technological solutions also allow us to advance fossil-free forestry and reduce our already low fossil emissions. Electrified transports and work machinery play a significant role here. As an example, SCA was the first in the world to deploy an electric timber truck.



SCA's employees have a high level of expertise in nature conservation.



SCA's first electric timber truck, deployed in 2022, does not have a crane and is used for transports between a timber terminal and SCA's paper mill. The electric timber truck deployed in 2024 (above) features a crane and collects timber from the forest for transport to a timber terminal.

By sharing knowledge and experiences, we can learn from one another and identify the best solutions. Collaboration and dialogue with our partners is therefore an important aspect of our operations. We participate in many development projects and have research collaborations with various academic institutions. We often make our forests available for studies and experiments.

By continually developing and improving our operations, we can ensure responsible forestry for future generations. With the force of the forest, we face the future.

Production: SCA in collaboration with Kerstin Olofsson Kommunikation
and Hallvarsson & Halvarsson.

Photos: Ola Kårén, Michael Engman, Lars-Ove Wikars, Ulf Hallin, Mikael Berg, Göran Ekström,
Magnus Eklund, Per Simonsson, Misan Lindqvist, Olle Melkerhed, Tapani Hellman (Pixabay),
Sandra Lee Pettersson, TT Nyhetsbyrån, SCA's archive of historical photos and Skogsbiblioteket SLU.
Illustrations: Martin Holmer, Nadja Nörbom, Robin Franzén.

Printing: Ågrenshuset, May 2026.

sca.com