



Landshypotek Bank

Green Bond Impact Report

17 May 2021

This report has been prepared within Landshypotek Bank's Green Bond Framework published 24 April 2018. This is the third impact report.

Stockholm, 17 May 2021

Per Lindblad
CEO

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Issued bonds – brief facts

Issue date:

25 May 2018

Tenor: 5 years

Nominal amount: SEK 5.25 billion

Maturity date: 25 May 2023

Type of bond: covered bond

Coupon rate: 0.75%

ISIN: XS1824244807

Issue date:

18 Nov 2019 (SEK 3 billion)/18 Nov 2020 (SEK 2.5 billion)

Tenor: 6 years

Nominal amount: SEK 5.5 billion

Maturity date: 18 Nov 2025

Type of bond: covered bond

Coupon rate: 0.615%

ISIN: SE0011870021

Forestry terminology

BEF (Biomass Expansion Factor) = conversion multiple for finding the total dry biomass.

Site quality = The land's natural capacity to produce timber. Expressed in m³ob/ha/year.

Carbon Fraction (CF) = carbon content of dry wood.

FSC = Forest Stewardship Council

PEFC = Programme for the Endorsement of Forest Certification

Volume over bark (m³ob) = This metric shows the forest stand's wood volume and includes the entire trunk above the normal stump height. Branches, stumps and roots are excluded.

The carbon dioxide effect: Through this green bond there are two carbon dioxide effects – absorption and avoidance. As the forest grows, carbon dioxide is stored and absorbed in the tree and the amount of carbon dioxide is reduced from the atmosphere. When harvesting forest and when forest raw materials are replacing other material the carbon dioxide emissions are reduced and carbon dioxide emissions are avoided and stored through substitution.

Net change in growing stock = The change in the standing growing stock measured in m³ob, that is growth less harvesting.

Green Bond Impact Report

Background

In May 2018, Landshypotek Bank issued its first SEK denominated green covered bond. In 2019, the bank issued an additional green covered bond and a further tranche of the second bond in 2020. At the time of publication of this report, Landshypotek has completed two green bond issues. Both of the issues comprise covered bonds and are used exclusively to finance sustainable Swedish forestry. The total volume issued amounted to SEK 10.75 billion. The underlying forest amounts to 559,000 hectares, which corresponds to an area the size of Gotland, Öland, Orust and Tjörn combined.

In spring 2018, Landshypotek prepared its first green framework to enable the issue of green bonds. The framework has been reviewed by the independent Center for International Climate Research (CICERO), which awarded the framework the highest shade "Dark Green." Under the framework, Landshypotek can issue covered bonds, senior bonds and subordinated notes. The proceeds raised by Landshypotek through the green bonds are to be used to finance sustainable forestry, renewable energy or green buildings.

This Report solely describes the impact from the underlying projects that meet the framework's sustainable forestry criteria.

"In 2020, we were once again able to satisfy market demand for investments in Sweden's sustainable forests when we issued a further SEK 2.5 billion in a second tranche of our second forest bond. It was incredibly gratifying to be met by such substantial market interest!"

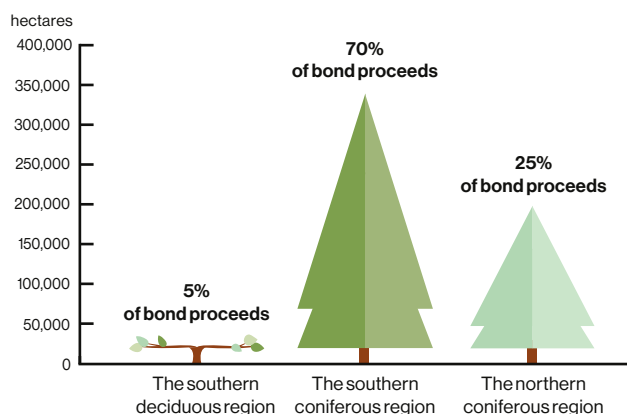
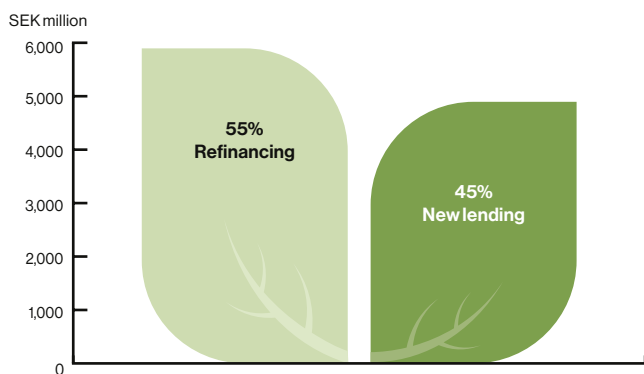
– Martin Kihlberg,
Chief Sustainability Officer, Landshypotek Bank

Landshypotek Bank and the forest

Landshypotek has financed Swedish forestry since 1836. The bank is owned by Landshypotek Ekonomisk Förening, in which all of the Bank's loan customers in the farming and forestry sector are members, and thereby own the bank. All of the bank's profits are reinvested in the bank or distributed to the association's members – Sweden's farmers and foresters. Being the first institution, back in 2018, to issue a green covered bond backed by Sweden's forests was unique and is fully aligned with the objective of Landshypotek's vision, namely, to make a real impact in promoting a sustainable society based on the daily activities by entrepreneurs across the country.

Impact reporting

A growing forest binds carbon dioxide from the atmosphere. The more the forest grows, the more carbon dioxide is stored. The total net growth at the properties financed through the green bonds was estimated at a volume over bark of 945,000 cubic metres for the past year. This corresponds to an annual carbon sequestration and substitution benefit of around **2.7 million tons of CO₂**. This means that for every SEK 1 million invested in the bond, around 250 tons of CO₂ has been absorbed and avoided. The figures include substitution effects but have not taken into account loan-to-value ratios. For further information and details see section *Growth and climate benefit calculations*.



The volume breakdown between the three regions: Southern deciduous region SEK 0.5 billion, Southern coniferous region SEK 7.6 billion and the Northern coniferous region SEK 2.7 billion.



17.0% of the covered bonds issued by Landshypotek Bank are green

15.1% of all senior and covered bonds issued by Landshypotek Bank are green

250 tons CO₂ has been absorbed and avoided for every SEK 1 million invested

Sustainable Development Goals



SDG 13. Climate action

Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

Landshypotek's contribution: Sustainable forestry binds carbon dioxide and can also replace fossil fuels used for energy in the form of fuel and other products. This means a reduction in carbon dioxide levels in the atmosphere and greenhouse gas emissions, and thereby strengthens the resilience and ability to adapt to climate-related hazards and natural disasters. The target of setting aside a certain percentage to deciduous forest that is included in the bank's Green Bond Framework criteria also means that the resilience of individual forests also increases in terms of natural disasters such as fires, storms and pests.



SDG 15. Life on land

15.1: Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.

15.2: Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.

Landshypotek's contribution: The Swedish Forestry Act states that the forest is a renewable resource, which is to be managed to ensure sustainable yields of good returns, while taking into consideration the natural and cultural environments, reindeer husbandry and other interests. An obligation to replant after harvesting is also contained within the law. The bank's framework requires customers to comply with the law, and also includes requirements in terms of a green forest management plan, that at least five per cent is set aside for nature conservation measures and that there are targets for inclusion of a minimum proportion of deciduous forest. The forest can also be certified through FSC/PEFC, both of which set at least equivalent requirements. These measures promote more long-term sustainable use of forests and accord with the international agreements implemented in Swedish legislation.

Selection process for green assets

Landshypotek Bank has a Green Bond Committee that determines which assets can be financed with the green bonds issued under the framework. Following the issue of the first bond, the Green Bond Committee has held 12 meetings to decide on the addition of further green assets. Repayments and redemptions are conducted on an ongoing basis throughout the year and, accordingly, it is crucial that the Committee meets regularly to ensure that, at any time, the volume of green assets backing the bonds exceeds the nominal amounts. At 30 April 2021, the volume of green assets backing the bonds amounted to SEK 10.79 billion, or 2,746 underlying properties, and comprised exclusively sustainable forestry.

Review

Under the framework, Landshypotek's independent credit risk department is appointed to control and review, at least annually, that the allocations of Green Bond net proceeds are made in accordance with the Green Bond Framework. The review for the 2021 report has placed particular focus on checking that the impact reporting is made in accordance with the framework. The review found that the two reports to date met the framework's criteria. Two improvements were proposed in the review, which have been included in this year's report. Share of loans per geographical region and when the forest management plan or alternatively certification was conducted for the two show-cased projects has been included.

Importance of sustainable forestry – for growth and climate benefit

Global warming is one of the greatest challenges of our times. The growing forest has a key role to play in countering climate change. 30 percent of the surface of the earth is covered by forest. The forest is key to the transition to a fossil-free society, since it is included as a natural part of the carbon cycle and absorbs carbon dioxide from the atmosphere. In Sweden, the forest covers almost two thirds of the total land area and is seen as a national asset and resource. Its significance and size makes it important to use and manage forests sustainably with a long-term perspective. This is to ensure that growth in the forests remains high and to preserve biodiversity and maintain the natural variations of the landscape.

Photosynthesis – function and impact

Photosynthesis is a natural process, whereby plants absorb carbon dioxide from the atmosphere and then convert it into energy. While some carbon dioxide is returned immediately through respiration, a considerable portion is allocated into the plant/tree. As the tree grows, carbon is also allocated into the ground via the roots. Active use and management of forests lead to increased growth and, accordingly, greater carbon sequestration, which in itself results in a greater climate benefit. When harvesting forest, forest raw materials are extracted for further consumption. Forest raw materials have numerous applications and the stored carbon could return directly to the atmosphere if used for combustion but can also be stored in, for example, buildings. Moreover, a substitution benefit arises when forest raw materials replace other fossil materials or materials that consume large amounts of energy in their extraction. The substitution benefit often outweighs the primary benefit arising from the carbon sequestration in forest growth, but it is difficult to calculate exactly since this requires information about the manufactured products and their lifespans as well as the materials they replace. An average value for the substitution effect in Sweden is around 470 kg CO₂/harvested m³ob¹.

A growing forest binds carbon dioxide from the atmosphere. The more the forest grows; the more carbon dioxide that is stored, which also means that sequestration by Sweden's forests varies according to the location of the forest. Site quality, defined as the soil's innate capacity to produce timber, is determined by the soil, the climate, moisture conditions and exposure. Site quality is expressed in volume over bark per hectare and year. There are substantial geographical differences in site quality in Sweden, from 12 m³ob/ha/yr in the south to 2 m³ob/ha/yr in the north.

1. Lundmark, T., Bergh, J., Hofer, P., Lundström, A., Nordin, A., Poudel, B.C., Sathre, R., Taverna, R., and Werner, F. (2014) Potential Roles of Swedish Forestry in the Context of Climate Change Mitigation, *Forests* 2014, 5(4),557-578.

Growth and climate benefit calculations

Within the framework of this report, the locations of the forest properties, financed and refinanced with the bank's green bonds, have been divided into three geographic areas – the southern deciduous region (10.8 m³ob/ha/yr), the southern coniferous region (8.0 m³ob/ha/yr) and the northern coniferous region (4.2 m³ob/ha/yr). Based on the Forest statistics 2020 from the Swedish University of Agricultural Sciences' Swedish National Forest Inventory, the average site quality has been established for the three regions. Thereafter, the average site quality has been used as a growth multiple for calculating the change in the growing stock. Growth has been calculated for a full year, even if the issue dates varied throughout the year.

To calculate carbon sequestration at the forest properties financed by Landshypotek, the following formula has been used:

Total carbon sequestration (tons) = change in growing stock (m³ob) x BEF x CF

BEF (Biomass Expansion Factor) = conversion multiple for finding the total dry biomass

CF (Carbon Fraction) = carbon content of dry wood

For calculation purposes, the BEF has been set at 0.75², which is a weighted average for pine and spruce, and the CF has been set at 0.51³. To convert carbon sequestration into carbon dioxide sequestration, the following formula has been used:

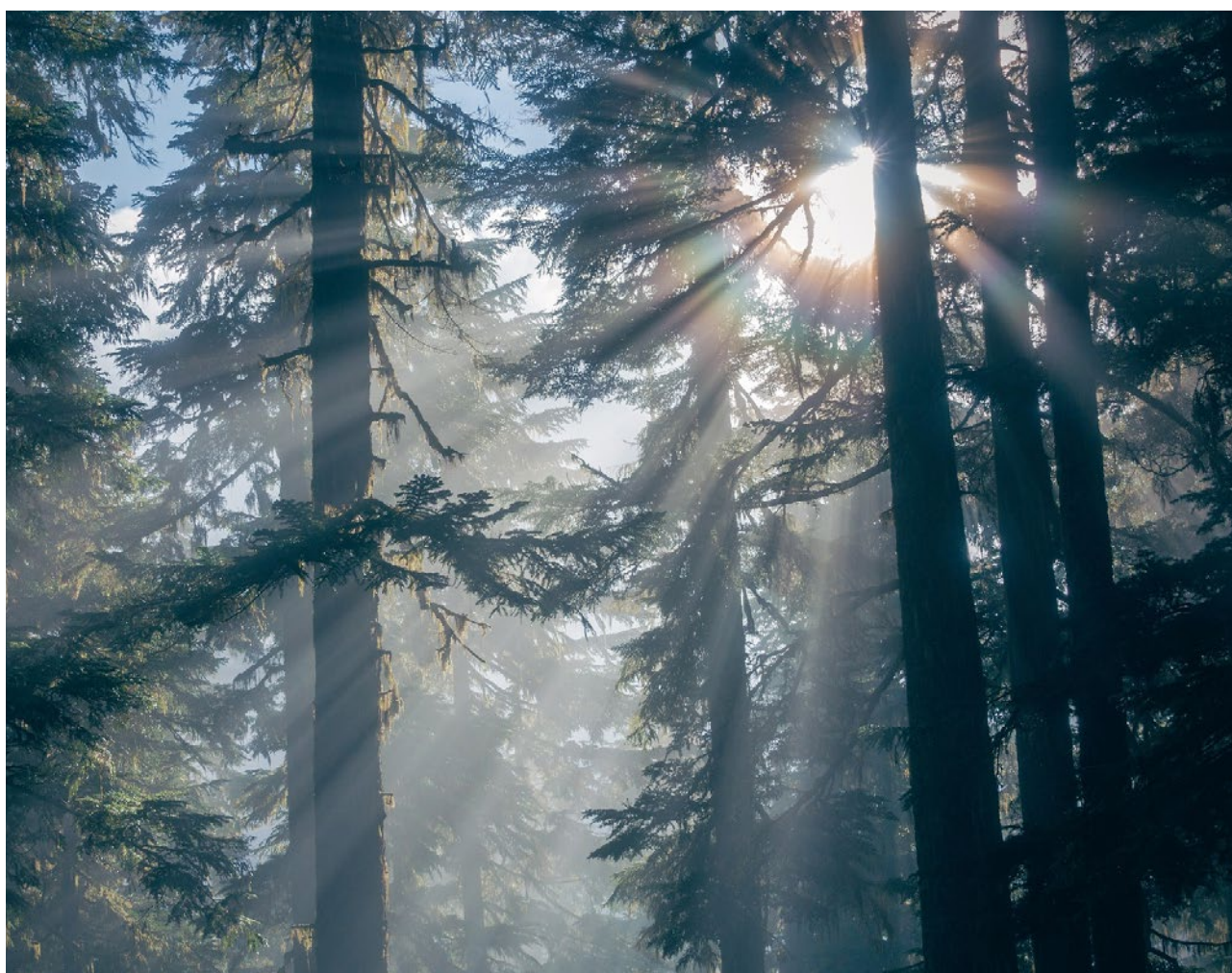
Total carbon dioxide sequestration (tons) = carbon sequestration (tons) x (CO₂ molecule's weight/C molecule's weight)

In 2020, the growing stock in the financed projects increased 3.8 million m³ob (6 percent of the growth was in the southern deciduous region, 72 percent was in the southern coniferous region and 22 percent was in the northern coniferous region). On the assumption that 75 percent of the growing forest is harvested and is used to replace other material, a substitution benefit arises of 1,332,000 tons in avoided carbon dioxide emissions. At the same time, the remaining standing forest contributes to a net carbon sequestration of around 1,325,000 tons.

The project's average loan-to-value ratio is 0.39, which means that 1.03 million tons of CO₂ is a direct result of the financing and 2.67 million tons of CO₂ indirectly (when the entire forest stands are included).

The calculations are based on site quality – in other words, the growth at the culmination of the average growth rate.

2. Lehtonen, Aleksi & Mäkipää, Raisa & Heikkinen, Juha & Sievänen, Risto & Liski, Jari. (2004). Biomass expansion factors (BEFs) for Scots pine, Norway spruce and birch according to stand age for boreal forests. *Forest Ecology and Management*. 188. 211-224. 10.1016/j.foreco.2003.07.008.
3. 2006 IPCC guidelines for National Greenhouse Gas Inventories.



Two voices for sustainable forestry



Visiting the forest outside Sala

A few kilometres north of Sala, we find Catrinelund. The farm where Göran Carlsson lives with his family and which forms the core for many parts of the business that he has built over the past decades.

Catrinelund was purchased by Göran's grandfather at the start of the 1930s and has then been passed on within the family. Forestry and sawmill operations have been a natural part of the farm since then, even if Göran has chosen to build up additional business operations. Today, 600 hectares are used for arable farming and 350 hectares for forestry. Aside from operations in farming and forestry, it is clear that Göran has a flair for business development and technology. Other business operations include machinery sales such as chainsaws and brush cutters in the local garden centre, rental of seed crop cleaning machines and solar energy ground works contracting for commercial properties and farms.

New acquisition of a well-managed forest property

Göran has always had a love for the forest. As a child, when his father was out with the chainsaw, he would often follow with his axe and disbranch tree trunks. In the last years, the forest has received even greater attention, as it was in late winter that Göran bought the newest and largest property. Previously, Göran has leased arable land from the seller and when the property went up for sale, he decided to buy. This enabled better organisation of the parcels of land and provided a substantial increase in forest. And it is a fine property that Göran has bought. A well-managed property with a lot of old forest that will shortly be harvested and make way for new trees.

Forestry means adapting to nature

Göran's former land parcels have endured a lot of trials in recent years. Three years ago, the property suffered a major forest fire and three hectares of prime forest literally went up in smoke. The local authority, which owns adjacent forest, was hit even harder and has since struggled to remove all the damaged trees, which has been a boon for bark beetles. The trees were severely weakened by the fire and have been infested by the bark beetle, which has unfortunately also spread to some of Göran's parcels.

However, wildlife damage has been low of late as the moose population has been kept down. But now the moose population is once again rising, which is causing problems, especially for pine seedlings. It is important to be diligent with clearing operations to prevent deciduous trees growing among newly planted pine stands. Moreover, seed-sown trees seem to cope somewhat better with wildlife, which is why Göran has bought new seed-sowing machines for the summer.

The choice of tree species is important in the actual forest planning. On some parcels recently purchased by Göran, there are spruce forests on pine soils, which is not optimal. It can work for 20–30 years but then growth slows considerably. Göran has a parcel of spruce that he will harvest "prematurely" given its age, but it is high time to replant the pine soil with pine. While it might work in the short term, you can't fool nature. Forests are long-term and you have to adapt to the prevailing conditions.

In addition to drought, heavy rainfall poses a further major challenge. Göran notes that there is a considerable general need to cut and clear around watercourses to improve drainage. Standing water can easily damage the forest in the same way as the crops in the field.

More time for the forest as a pensioner

On his retirement a few years ago, Göran handed over large parts of the operations to one of his sons. Göran now plans to devote more of his time to his forest now that he has retired. The idea is that planting, clearing and the first thinning will be done in-house with the help of employees. In addition to keeping himself occupied as a pensioner, the forest purchases are part of future generational changeovers.

We conclude by asking what is most enjoyable about being a farmer and the answer comes immediately:

"There is a lot of freedom in being self-employed. And with farming and everything else I've been doing, there's a lot of diversity and variety in the work, which I really enjoy."



County: Västmanland County
Municipality: Sala
Productive forest land: 213.7 hectares
Site quality: 5.7 m³ob
Estimated climate benefit: 865 tons of CO₂ per year
Management targets:
PG – production with general nature conservation: 201.4 ha
NS – Nature conservation targets with management: 4.9 ha
NO – Nature conservation targets, untouched: 7.5 ha
Forest management plan: prepared in 2020



County: Västerbotten County
Municipality: Skellefteå
Productive forest land: 135 ha
Site quality: 4.0 m³ob per ha
Growth: 5.0 m³ob per ha
Estimated climate benefit: 987 tons of CO₂ per year (the climate benefit is calculated using the same model for the entire portfolio, however as the growth factor, figures for actual growth according to the applicable forest management plan have been used instead of the site quality).
Breakdown of forest by management targets:
P/PG – Production target with environmental stewardship: 127.7 ha
NS – Nature conservation targets with management: 5.7 ha
NO – Nature conservation targets, untouched: 1.6 ha
Forest management plan: updated in 2020

Revisiting the forest outside Burträsk

Beatrice Wikman purchased her first forest property five years ago together with her husband Marcus. The forest has always been a major part of Beatrice's life and is a keen interest that she shares with Marcus. The property they acquired is in Burträsk, close to the farm where she grew up. Beatrice and Marcus bought the same farm three years ago when it was time for generational change at her parent's farm. In 2018, the forest was PEFC certified. We have returned to the forests outside Burträsk to pose a few questions about the past year's forestry operations.

What was done in the forest in the winter and spring 2020?

"At the start of the year, we carried out the actual thinning of two sections of the forest. One section of 3.6 hectares will be harvested and the other section has been prepared for future thinning, which will be carried out in two to five years depending on the situation at the time. Moreover, we have picked up many spruce cone for seed extraction to obtain our own seeds. So now we have several thousand very high quality spruce seeds for planting!

What did you do in the summer?

"During the summer, we applied and planned for ditch cleaning and also permission for a protection ditch for a clearcut that currently has a slightly elevated water level. We also engaged a contractor to clear a larger parcel, R2/G1, of five hectares that had been neglected according to our forest management plan, which we updated in 2020."

What was done in the autumn and winter?

"We harvested the 3.6 hectare parcel that we had thinned earlier in the year. We had gale force winds for a week over Christmas,

which resulted in us having to cut and bring home 30 cubic metres in volume over bark of storm-felled forest ourselves."

What do you mean by cut?

"Cutting entails preparing timber directly in the forest by cutting trunks into logs that we then transported out of the forest to sell onward."

Was there anything special about the past year?

"We have noted a clear and substantial increase in prices of forest land, which we experienced personally when we bid for a property. Unfortunately, timber prices declined slightly over the winter. Otherwise, it has been very windy and a lot of snow has fallen. Fortunately, however, there were few top ruptures this time, which is nice! Otherwise, the weather was stable and favourable and our two fields with crops for wildlife produced well, which kept moose away from our pine seedlings."

What are your best forest memories from 2020?

"I would have to say that it was the great partnership between my husband and myself in the forest. That we get to spend time together while we care for our property. For example, when we dealt with the storm-felled trees last Christmas, my husband ran the chainsaw while I loaded the timber with the tractor and trailer. It was great teamwork, but also necessary from a safety perspective, particularly when working with windfalls."

What do you expect from the forest in 2021?

"We think the forest industry seems to be experiencing a general upswing again and exports seem to be increasing, which bodes well for prices. Otherwise, I hope the snow soon thaws completely to provide some real thinning weather so we can load the saws in the car and spend a day or two tending our forest!"

Further information about Landshypotek Bank Green Bonds are found at
www.landshypotek.se/en/about-landshypotek/investor-relations/green-bonds

