



Landshypotek Bank

Green Bond

Impact Report

17 May 2022

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

Stockholm, 17 May 2022

Per Lindblad
CEO

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Chief Sustainability Officer

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.

Landshypotek's Green Framework

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 in the volume of green assets backing the bonds amounts to 560,000 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. This report, like previous years, includes all green assets backing the bonds which ensures that the pool of underlying green assets is larger than the amount of green bonds issued. The total volume of green assets backing the bonds which totals SEK 11.2 billion.

For forests since 1836

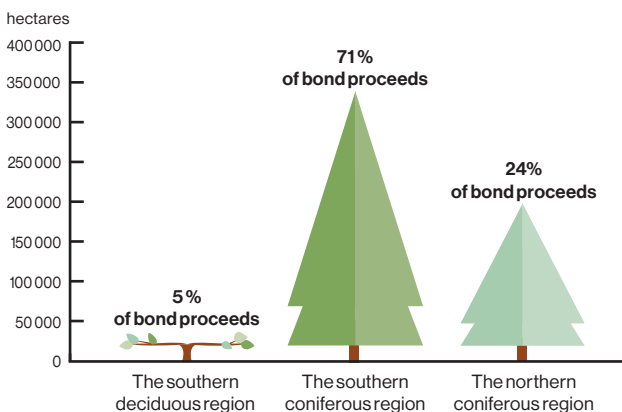
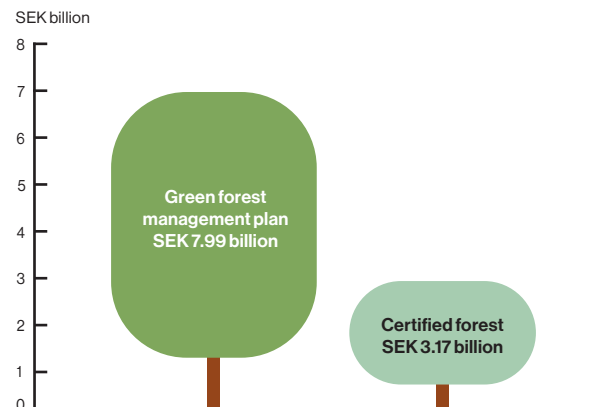
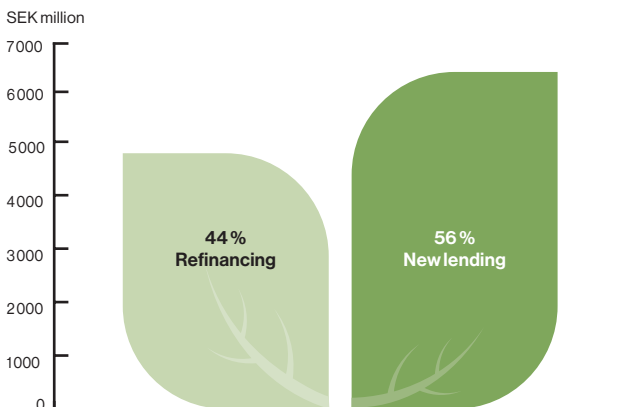
Landshypotek has financed Swedish forestry since 1836. The bank is owned by Landshypotek Ekonomisk Förening, in which all of the Bank's loan customers in the farming and forestry sector are members, and thereby own the bank. All of the bank's profits are reinvested in the bank or distributed to the association's 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.

” The forest continues to grow. Sweden's sustainable forests have continued to provide a benefit for the climate. It is fantastic that Landshypotek Bank can contribute to the Swedish forests' climate benefit through our green bonds.

Martin Kihlberg, Hållbarhetschef Landshypotek Bank

Growing forests create a climate benefit

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 978,000 cubic metres for the past year. This corresponds to an annual carbon sequestration and substitution benefit of around **2.75 million tons of CO₂**. This means that for every SEK 1 million invested in the bond, around 260 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 breakdown for the volume of green assets backing the bonds between the three regions: Southern deciduous region SEK 0.5 billion, Southern coniferous region SEK 8.0 billion and the Northern coniferous region SEK 2.7 billion.

13,4% of the covered bonds issued by Landshypotek Bank are green

12,6% of all senior and covered bonds issued by Landshypotek Bank are green

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

All data as of 31 March 2022

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 31 March 2022, the volume of green assets backing the bonds amounted to SEK 11.16 billion, or 2,718 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 2022 report has placed particular focus on checking that the underlying assets meet the criteria specified in the Green Bond Framework. The review concluded that all assets meet the relevant criteria but certain samples contained data quality issues where information about the loans was not available in a structured way. The bank will work to address these data quality issues.

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 (8.2 m³ob/ha/yr) and the northern coniferous region (4.4 m³ob/ha/yr). Based on the Forest statistics 2021 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 2021, the growing stock in the financed projects increased 3.9 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 1,379,000 tons in avoided carbon dioxide emissions. At the same time, the remaining standing forest contributes to a net carbon sequestration of around 1,372,000 tons.

The project's average loan-to-value ratio is 0.37, which means that 1.04 million tons of CO₂ is a direct result of the financing and 2.75 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**



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: 475 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: prepared in 2020



Revisiting the forest outside Burträsk

We have again had contact with Beatrice Wikman who together with her husband, Marcus, owns a forest property outside of Burträsk in the north of Sweden. The forest has always been a major part of Beatrice's life. Beatrice and Marcus' passion for the forest is clear in all the hard work they do together on their forest property. In 2018, the forest was PEFC certified and they work actively to ensure the forest is managed and looked after in the best possible way.

Beatrice, what did you do in the forest during the winter and spring of 2021?

"During the winter, we worked weekend after weekend with removing trees that had been blown over. We cut the trunks into logs and then transported them home. As per usual, we always work together for safety reasons when we do such a job. We sold approximately 60 cubic metres of timber and still had some left over for our own use. During the spring, we collected pinecones to dry and collect the seeds. We continued our experiment with collecting and planting seeds which is fun".

What did you do in the summer of 2021?

"We surveyed a large number of our forest ditches and Marcus cleared out the ones which had grown over. We prepared approximately 5 hectares of land through harrowing, as this is the best solution for the mineral rich soils. We had planned to harrow about a hectare more of land but we used other methods which were better suited to the specific soil type. We also applied for an environmental permit for and dug a protection ditch. We are planning on planting spruce seedlings in this area and even some spruce seeds which we will plant by hand".

What did you do during in the autumn of 2021 and the winter of 2022?

"Together with a forest inspector, we have developed a plan for the coming years for thinning measures in different areas of our forest stand. These areas include G1, and G2 which are ready for thinning measures and S1, the area of the forest which is ready for harvesting. Some of the bigger measures include creating two new roads for tractors and harvesting and clearing the areas that are ready for thinning measures. During late autumn, we finished preparations for two areas in G1 and the nearby forest

track was cleared. Prior to Christmas, we cleared several trailer loads of wood before too much snow fell".

What do you expect from the forest in 2022? Do you foresee any particular opportunities or challenges?

"We will keep working according to our forest use plan. We have also purchased our own excavator which is specifically designed for work in the forest which will make our work most cost-effective. I am also pushing at home to increase the amount of leafy deciduous trees in our forest. This could be mountain ash rather than birch trees or asp. I want to avoid creating a monoculture, as this is not conducive for biodiversity. On the topic of biodiversity, I am also planning on planting a meadow with flowers nearby to help the area's biodiversity and to help those important creatures which, I think, will also help the forest.

I also think that demand for Swedish wood products and Swedish forests will increase. We have rising inflation and rapidly increasing costs and a key question is to what extent timber prices will also follow suit. We have a number of areas in our forest which are small and quite spread out. With current prices, it is not economically worthwhile for us to thin these areas using a machine but we will need to do the work ourselves."

Beatrice, we have had the good fortune of following you and your forest over a number of years. Is there anything in particular of which you are particularly proud?

"I would have to say that it was the great partnership between Marcus and myself in the forest. To have the chance to make your vision of a more sustainable and varied forest management become a reality is something that I am very proud of."



County: Västmanland County
Municipality: Sala
Productive forest land: 213.7 hectares
Site quality: 7.9 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

An example of sustainable forest management outside Sala

Göran Carlsson lives on a property with his family several kilometres north of Sala. Together with 600 hectares of plant-based farming, Göran has forest properties. Göran’s forests are one of many forest properties that make up the volume of green assets backing Landshypotek Bank’s green obligations. Göran’s forests are a good example of long-term and sustainable forest management which the bank can contribute to through our green bonds.

A long-term engagement for the forest and nature

Forestry and sawmills have been a natural part of Göran’s property since Göran’s grandfather purchased the property almost 100 years ago. Göran purchased his most recent forest property in 2020 but the consequences of previous events beyond Göran’s control continue to be present. In 2018, the property suffered a major forest fire and three hectares of prime forest literally went up in smoke. Göran noted that there were pine trees which survived the forest fires but are not of the quality that can be delivered to the timber industry. Therefore, Göran plans on cutting down the pines with his own machines instead. A recurring theme in Göran’s forest ownership is his passion to complete necessary work in his forest by himself and with his own machines.

During the forest fires, the local authority, which owns adjacent forest, was hit even harder. The local authority has since struggled to remove all the damaged trees, which has been a boon for

bark beetles. The trees became infested by the bark beetle, which has unfortunately also spread to some of Göran’s parcels.

Work completed in the forest during 2021

Forest ownership is a long-term investment and, for the most part, Göran’s forests grew well during 2021. To combat the spread of bark beetle, Göran removed a number of mature pine trees. Göran used his own machines to complete thinning measures in his forests to improve conditions for other trees on the properties. Göran also made the decision to harvest a parcel of spruce “prematurely” in order to plant pine trees in the pine soil. The correct planting of trees is an important part of long-term and sustainable forest ownership. The results of Göran’s work will hopefully be evident of the coming years.

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

