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Volvo Cars Position on nature and biodiversity

Purpose of the document

This paper describes Volvo Cars' ambitions and current work on nature and biodiversity throughout its value chain. This work is integrated in the company's strategy towards becoming a circular business and net zero carbon by 2040 and contributing to a nature positive future.¹

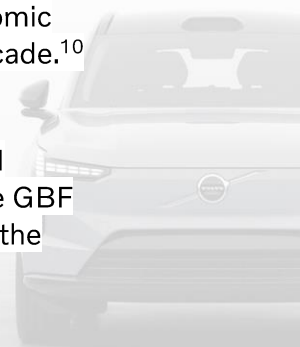
Background and challenges

General

- Nature is the natural world, which includes living elements – such as variation in species of plants and animals (i.e., biodiversity) and non-living elements – such as water, soil, climate, and geology. It also includes ecosystem services such as water filtration, pollination, climate regulation and many others.² Biodiversity can be defined as 'living nature' or 'the variety of life on Earth', and includes variation across genes, species, and ecosystems.³ Nature without biodiversity would be a planet without life.
- Human societies, economies and well-being are also intrinsically linked to nature via socio-ecological systems⁴, wherein nature provides a range of benefits to people. These benefits include direct use of natural resources, as well as maintenance of a functional and productive climate and ecosystems.⁵
- The world population has increased from 2.5bn people in 1950 to 8bn today and is expected to reach 10bn by 2050.⁶ This has occurred alongside increased per capita consumption with global materials use rapidly growing from 79Gt in 2011 to an estimated 167Gt in 2060.⁷ This drastic increase in demand for resources has led to major increases in agriculture, mining, material processing and manufacturing, all of which require land, water, and energy, as well as generating waste and pollution. In turn, these activities contribute to both climate change and biodiversity loss.⁸
- As a result, it is estimated that abundance of monitored wild vertebrates has declined by almost 70%, on average, since 1970⁹, while nearly 1 million species could be at risk of extinction. Forests and ocean ecosystems have been impacted, with over 30% of forest area lost and almost 90% of global fish stocks overexploited.¹⁰ The World Economic Forum has put the biodiversity crisis in the top three global issues in the next decade.¹⁰

Metrics and regulations

- In recognition of the biodiversity crisis, 2022 saw the adoption of a landmark UN agreement – the Kunming-Montreal Global Biodiversity Framework (GBF)¹¹. The GBF aims to "halt and reverse biodiversity loss to put nature on a path to recovery for the

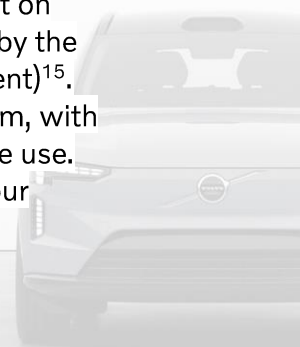


benefit of people and planet”, and explicitly calls upon the private sector to progressively both reduce negative impacts on biodiversity and increase positive impacts.

- In parallel, ‘Nature Positive’ is emerging as a rallying call to mainstream action towards the GBF. Business leaders, legislators, and multistakeholder organizations, including the World Economic Forum, are now converging on ‘Nature Positive by 2030’ as a shared global goal for nature.¹²
- Unlike for climate, which has a well-established single metric to measure progress (CO₂e), biodiversity is multi-faceted and complex both in terms of needed data and assessment methodologies, with the need to consider multiple pressures (e.g., change in climate and land use, water, pollution), multiple outcomes (e.g., genetic diversity, species abundance and extinction risk, ecosystem integrity), and location-dependencies.

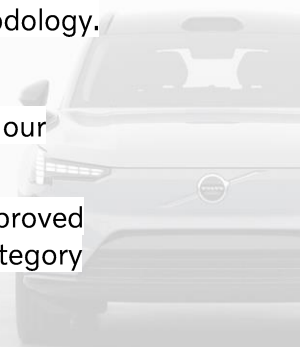
Volvo Cars impact

- As a first step towards contributing to the goal of the GBF and a Nature Positive future, Volvo Cars conducted an assessment and prioritization of our impacts on biodiversity. We used production and sales data from 2021 for selected car models representing our fleet to calculate the annual biodiversity footprint of our products across the value chain, including, for example, the mining and land use change in our upstream value chain; energy and water usage within our own operations; and water and energy during the use phase and end of life of cars.
- As we did with our carbon footprint assessment, we used a Lifecycle Impact Assessment (LCIA) method to assess our biodiversity footprint, following the ReCiPe model. ReCiPe is an established method using generic data for translating emissions and resource extractions into estimated environmental pressures including land use, water use, climate change, and different types of pollution. The ReCiPe model also converts these different types of impacts into a single common metric, expressed in ‘species.year’. This metric represents the estimated magnitude of damage to species and ecosystems, because of environmental pressures, and can be used to compare the relative biodiversity impacts of various products, processes, components, and parts of the value chain. Once the major impact areas are identified, context-specific and directly measurable data can be used to identify actions and monitor progress.¹³
- We have calculated the biodiversity footprint of Volvo Cars business activities and its potential impact in 2021 (baseline) using the “species.year” metric. We have applied the LCIA framework and intend to continuously improve it by acquiring more knowledge and quality data to be able to trace our performance on a yearly basis and over time.¹⁴
- Volvo Cars’ largest biodiversity impact (64%) was estimated to occur in the use phase of which the largest part comes from the production and use of fuels. 34% occurs in the upstream value chain and 2% in our own operations.¹⁴
- For other nature-related resources, we estimated that water usage and its impact on terrestrial and aquatic systems are largest in the upstream value chain, followed by the use phase and our own operations (see Volvo Cars Position on Water Management)¹⁵. Annual total resource use (2021) was also estimated, and occurs mainly upstream, with inert rock and gangue together representing approximately 75% of total resource use. These are both by-products of mining operations. For the materials that go into our products; copper, aluminum, and steel are the most resource intensive.¹⁴



Volvo Cars position

- We are committed to avoid and reduce our negative impacts on biodiversity throughout our value chain, while making positive contributions towards nature recovery.
- We are taking a complete value chain approach in our biodiversity work and prioritising our action based on the highest impact, and the areas where we have the most control to take immediate action. We will also work collaboratively with partners within our value chain, as well as cross-industry, to tackle key cross-sectoral issues (e.g., recycled content) and inspire others to do the same, thereby drive transformative change⁴.
- Since a large part of our biodiversity impact occurs in our upstream value, we will focus on avoiding and reducing the impacts of the materials and processes used for producing our cars. This will involve ramping up circularity and resource efficiency ambitions, so that we use fewer primary materials in our cars overall; conduct research and development to reduce the impact of our components, including material selections; and engage with our suppliers to decrease the impacts of production processes.
- Volvo Cars recognize that the use phase of our products has a major impact on biodiversity, for example due to GHG emissions from fuel in our combustion engine cars, service items including spare parts and water used for car washing. Our circularity and climate ambitions will contribute towards mitigating these impacts, and we intend to investigate and address other use phase impacts.
- We are aware that our strategy of abating climate impact by transforming into only offering battery electric products will create other impacts on biodiversity compared to conventional engines, e.g., due to mining for metals for battery production. Therefore, we continue to assess and develop actions to avoid and reduce the biodiversity impacts of batteries, while at the same time maintaining the climate impact abatement benefits.
- As a producer of goods, it will be impossible to avoid and reduce all negative impacts on nature and biodiversity. As such, an investment in restoration and conservation will be required to counterbalance our residual negative impacts. We intend to carefully select a portfolio of restoration and conservation activities, in landscapes and ecosystems which are negatively impacted by our business activities.
- In line with our corporate ambition - to be net positive across our value chain and contributing towards a Nature Positive future – we are focusing on:
 - Own operations – we plan to formulate an ambition for the maintenance and development of our sites and buildings.
 - Products (cars) – we proactively work to understand and reduce the biodiversity impacts of our new car models. This requires e.g. balancing between the negative biodiversity impact of battery driven cars with reduced CO₂ emission. At a product level, we will evaluate the biodiversity performance of our future cars using a whole value chain approach based on the Lifecycle impact assessment (LCIA) methodology.
 - Pressures – covering three main areas:
 - Climate – we aim to reach net zero greenhouse gas emissions by reducing our climate impact as far as possible and removing any residual emissions.¹⁶
 - Pollution - to continuously reduce our pollution footprint by focusing on improved data collection, product development and procurement processes. One category



of pollutants that we methodologically control and monitor in our products is Substances of Concern (SoC). Volvo Cars has had a process in place for more than 20 years through which total usage of SoC in our products is being monitored.

- Land and Water – we will continuously monitor outcome for these pressures to ensure that our actions result in reductions in line with our corporate ambitions.

Volvo Cars actions

- A roadmap of activities, divided into short- and long-term steps, is being developed, which will be reviewed and updated continuously as more data and knowledge is acquired. The activities can be divided into various types, covering product and process, in own operations as well as the rest of our value chain:
 - To continuously enhance the assessment methodology and data quality over time.
 - To avoid and reduce biodiversity impacts across our value chain by e.g., increasing recycled content, selecting materials considering their biodiversity impact, reducing resource use, and increasing resource efficiency. E.g., we have increased our recycled-content ambitions to be 30% average across vehicles produced in 2030.
 - To collaborate with our suppliers, retailers, and partners in our up- and downstream value chain to identify sites in key biodiversity areas, establish awareness on biodiversity impacts and access localized data, as well as on performance and sourcing procedures with a clear focus on biodiversity, water, and resource use.
 - To reduce our impact from own operations we will set a strategy following the principles of the *mitigation hierarchy*.¹⁷ We also need to understand the state of nature at our sites to be able to act effectively where needed. For example, in our own operations, a first step is to assess activities within our main site in Torslanda, Sweden, which is adjacent to a biodiversity sensitive area as well as work with 'net positive' principles for development of our site in Slovakia.
 - To develop a program for restoration and conservation within ecosystems where we operate and across our value chain, for the most significant pressure types.
- In 2024, we are assessing our dependencies on nature and biodiversity in terms of risks and opportunities, to better understand the biodiversity impacts on our business.

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- 16 Volvo Cars position on climate action [volvo_cars_climate_action_position_paper.pdf \(volvocars.com\)](#)
- 17 Mitigation hierarchy is "a decision-making framework involving a sequence of steps starting with the avoidance of impacts, followed by the minimization of inevitable impacts, on-site restoration and finally, where feasible and necessary, biodiversity offsets". <https://www.iucn.org/resources/issues-brief/biodiversity-offsets>

