



Climate change and forests – national examples from Finland

Tiina Rytilä

Senior ministerial advisor, forestry

Ministry of Agriculture and Forestry, Finland

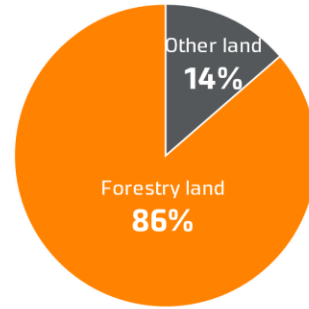
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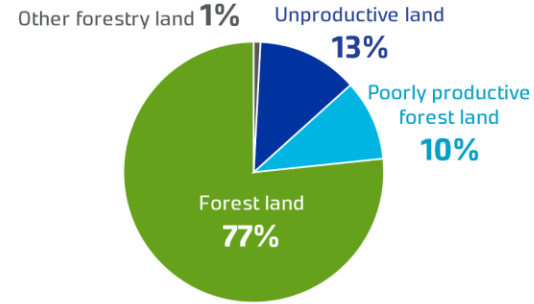
Key figures for the Finnish forests and forestry



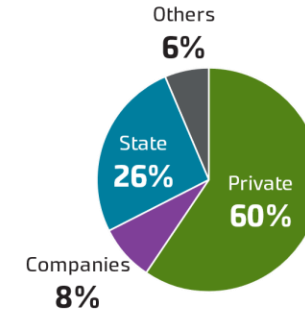
Finland's land area
30.4 mill. ha



Forestry land
26.2 mill. ha



Forest land
by ownership category

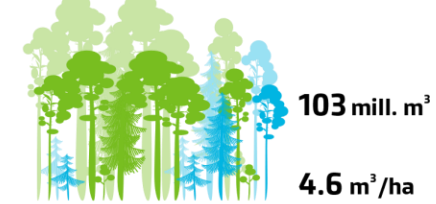


Growing stock volume
forest land and poorly productive forest land
2 506 mill. m³



Mean growing stock volume
forest land
122 m³/ha

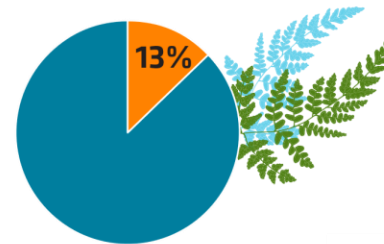
Annual increment of growing stock
forest land and
poorly productive forest land



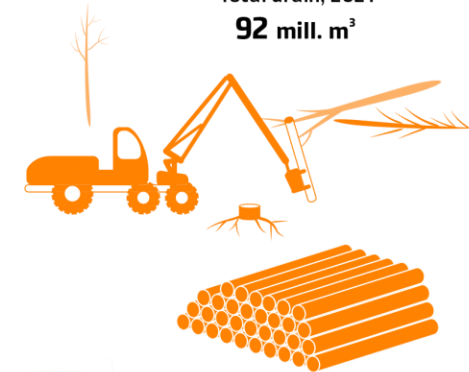
The biomass of the growing stock
forest land and
poorly productive forest land



Protected forest
forest land and
poorly productive forest land
2.9 mill. ha



Total drain, 2021
92 mill. m³

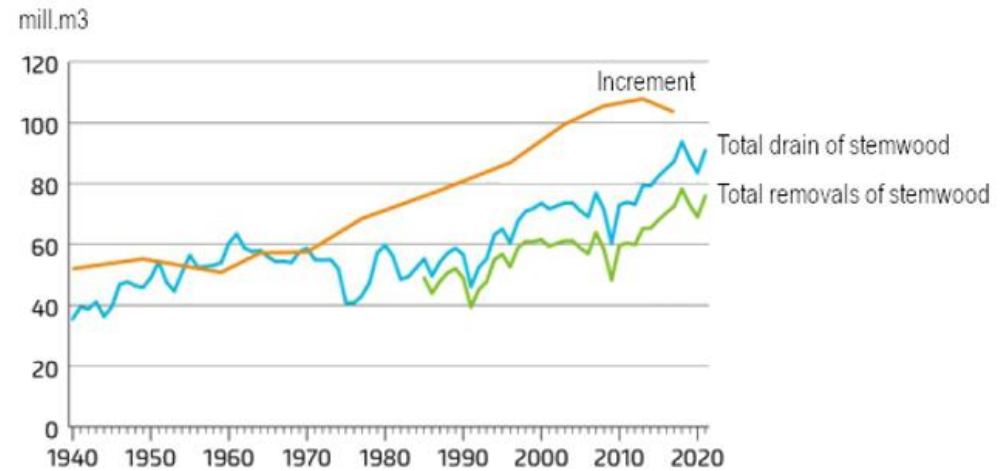


Source: Natural Resources Institute Finland

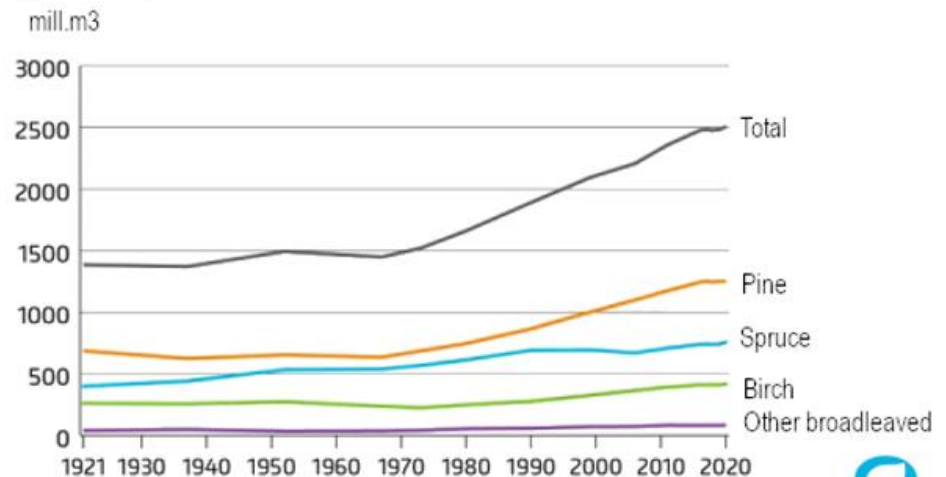
Key figures for the Finnish forests and forestry

- The volume of the growing stock has increased in Finland since the 1960s. The volume of trees is 1.8 times higher than 100 years ago.
- The annual increment of growing stock is bigger than total removals and natural mortality.
- Total removals of stemwood were on average 73 mill. m³, 91% of the maximum sustainable yield 2016–2021.
- About one-fifth of Finland's export revenues come from forest industry products.
- The forest sector (forestry and forest industries) employs 63,000 people (2020).

Total roundwood removals, increment and drain of growing stock 1940-2021

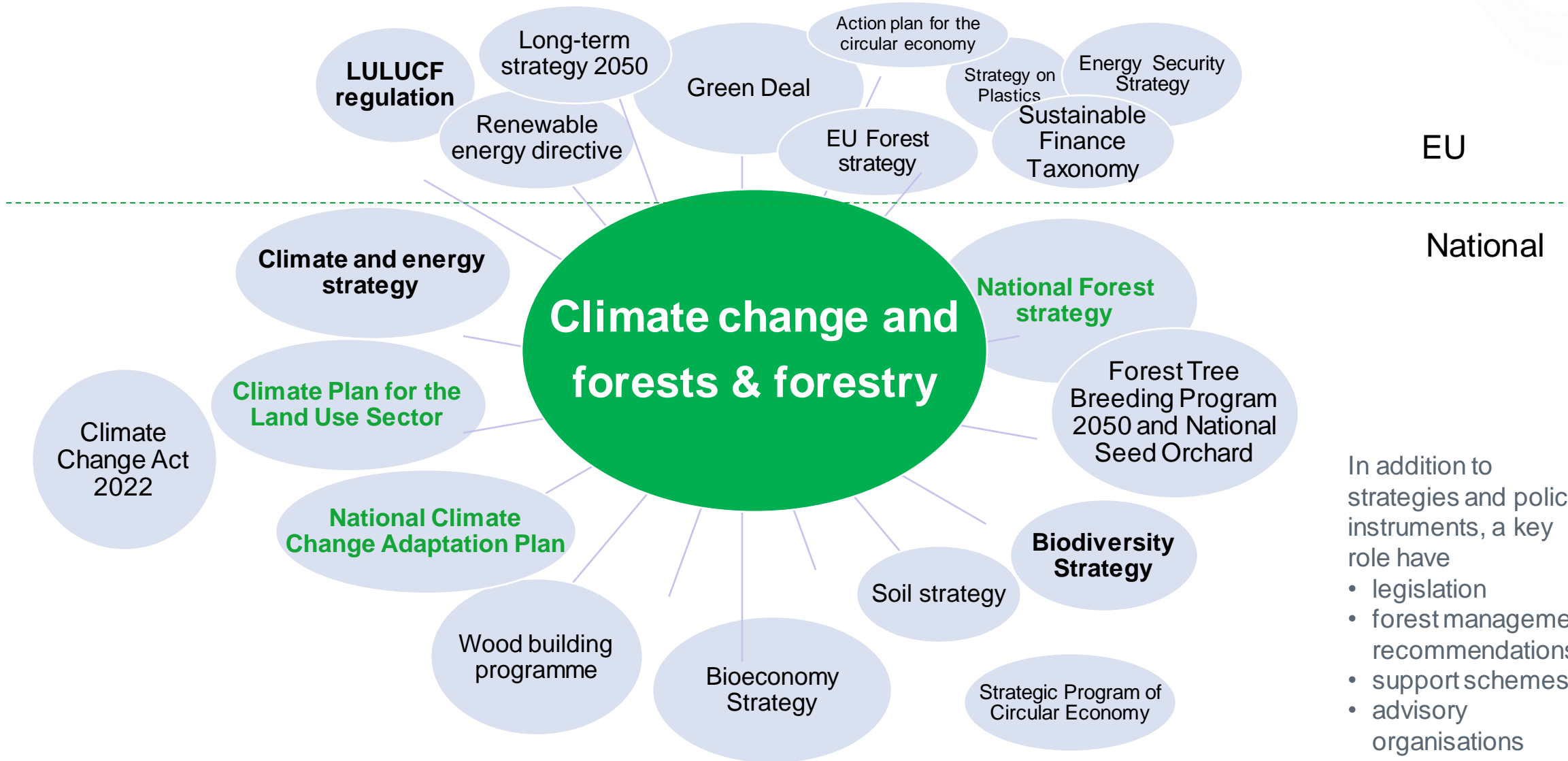


Growing stock volume on forest land and on poorly productive forest land, 1921-2021





Climate change and forests are included in several strategies





Forests and climate change

Finland aims to be **climate neutral** already by 2035. To achieve this goal, we implement emission reduction measures and increase carbon sequestration (carbon sinks).

In concrete numbers, we need to cut emissions by 35 million tons compared to current levels and enhance carbon sinks by 3 million tons (corresponding to almost half of our current agriculture emissions).

The forest sector can influence carbon sequestration in many ways:

- The forest management methods are reformed - The aim is to increase forest growth and thus carbon sequestration
- The state of health of forests is taken care of and efforts are made to avoid forest damages
- Monitoring the state of forests is an integral part of the entity
- Long-lived wood products form carbon storages



Forest management methods are reformed

- Forest management methods change as information increases and the objectives of citizens and forest owners change
- Forest management methods are also reformed to respond to climate change
- Main issues and risks that must be taken into account in forest management include, in particular:
 - Storms
 - Insect damages and root rot
 - Drought and other exceptional weather conditions
 - Forest fires, even they are fairly rare in Finland
- Finland has drawn up a **climate change adaptation action** plan that also covers forestry.

National Climate Change Adaptation Plan 2030 (Dec. 2022)



- Finland has drawn up a climate change adaptation action plan that also covers forestry.
- Vision: Wellbeing, safety and security in a changing climate
- Part of the climate policy planning system under the Climate Act.
- Includes a climate change risk and vulnerability assessment and aims for national adaptation work in Finland.

<https://julkaisut.valtioneuvosto.fi/handle/10024/165528>



Prevention of forest damages is an established practice



- The health status of forests in Finland is still good. Occasional local forest damages are caused e.g. by storms, snow, elk, annosus root rot, bark beetles and vole
- Climate change increases the risk of different damages and pest outbreaks in forests
- So far, forest fires have not caused significant damage in Finland
- The goal is to prevent damages in advance by active forest management and monitoring
 - The Ministry of Agriculture and Forestry is responsible for plant health policy and legislation. As a part of national legislation, the Forest Damages Prevention Act and the Plant Health Act aim to maintain good forest health in Finland, and to prevent further forest damages.



Research and innovation

Research is needed to prepare for and adapt to climate change

- the adaption of wood species to changing conditions, such as drought
- the first research programmes were launched in the 1980s
- A large research and innovation package is currently implemented with the aim of finding ways to increase carbon sequestration in forests.
 - Read more about [the Climate Plan for Land Use Sector and the activities](#)



Climate plan for the land use sector includes several measures to increase carbon sinks and storages

- Climate Plan for the Land Use Sector plan was drawn up in Finland for the first time in 2021-2022. The plan was submitted to the Parliament in July 2022.
- Plan contributes to the achievement of the national target of carbon neutrality by 2035 and of the climate objectives of the EU.
- The aim is the reduction of emissions from the land use sector, strengthening carbon sinks and adaptation to climate change
 - The key principle in the preparation was to reach the climate targets in a way that is as cost-effective, fair and just as possible.
- The annual net impact that the **additional measures in the land use sector aim for is at least three million tonnes CO₂ eq. by 2035.**





Catch the Carbon package plays a key role in implementation



- From 2020 onwards, the Ministry of Agriculture and Forestry has been coordinating the Catch the Carbon package of climate measures.
- Aim is to:
 - Strengthen the competence and knowledge base related climate work in the land use sector, and effective use of data and filling of the information gaps
 - Support agricultural producers, forest owners and other parties who make land use decisions in developing and introducing climate change resilient practices.
- Public investment (100 M € for 2020-2025) in research, development and implementation of best practices for mitigation and adaptation
- Composed of practical measures (e.g. financial support for the afforestation of wasteland), development projects, an information program and research and innovation program.



Finland's National Forest Strategy 2035

<https://mmm.fi/en/nfs2035>



National Forest Strategy 2035

GROWING WELLBEING FROM FORESTS AND FOR FORESTS

Finland is a competitive operating environment for a responsible forest-based sector that is capable of renewing itself

Forest-based business is increasingly diverse and continues to grow

Proactive and effective cooperation and influencing the EU and international processes improve the operating environment of the forest-based sector

Smooth administration and well-functioning infrastructure create a predictable and encouraging operating environment

Well-functioning markets ensure access to raw materials and services

Forests are in active, sustainable and diverse use

Use of forests is target-oriented and based on knowledge and active decisions by forest owners

Active and increasingly diverse forest management increases forest growth and supports climate change mitigation

Services and incentives to forest owners and operators support active, sustainable and diverse use of forests in a way that takes the special characteristics of regions into account

Ecosystem services offered by forests enhance people's wellbeing and create new earning opportunities

We strengthen the vitality, diversity and adaptability of forests

Biodiversity trend in commercial forests is directed onto a path to recovery

Climate change resilience of forests is strengthened and risks of damages are in control

Environmental risks caused by forestry are managed and in control

We strengthen knowledge-based management and competence in the forest-based sector

High-quality research, advancing spatial data and usability of data create a strong knowledge base for decision-making and foresight work

Forest expertise is diverse, responds to changing needs and attracts more people to seek employment in the forest-based sector

Communication and interaction enhance understanding of the use of forests and of forest environment and culture in society, especially among the young



Strategic objective 3

We strengthen the vitality, diversity and adaptability of forests

This ecological dimension includes safeguarding the biological and other kinds of diversity of forests. This objective also comprises measures to ensure the health and resilience of forests. Climate change adaptation and mitigation and risk management in general are also included.

Goals

1. *Biodiversity trend in commercial forests is directed onto a path to recovery*
2. *Climate change resilience of forests is strengthened and risks of damages are in control*
3. *Environmental risks caused by forestry are managed and in control*

National Forest Strategy 2035

Project portfolio



Biodiversity in commercial forests

- Financing models to protect biodiversity developed
- Nature management competence, planning and putting these to practice strengthened
- **Structural features of forests increased**
- **Mixed forest stands promoted**
- Water protection methods introduced in forestry
- **Climate-resilient and sustainable peatland forest management promoted**
- Market-driven operating models and ground rules developed to secure environmental benefits



Thank you!
Tiina.Rytilla@gov.fi