Climate Smart Forestry

Presentation of project results

Metsähallitus, Kaisa Vainio | 25 April 2018 Forest Innovation Workshop, Bryssels

METSÄHALLITUS

FINLAND

338,424 km²

OF WHICH FORESTS

71%

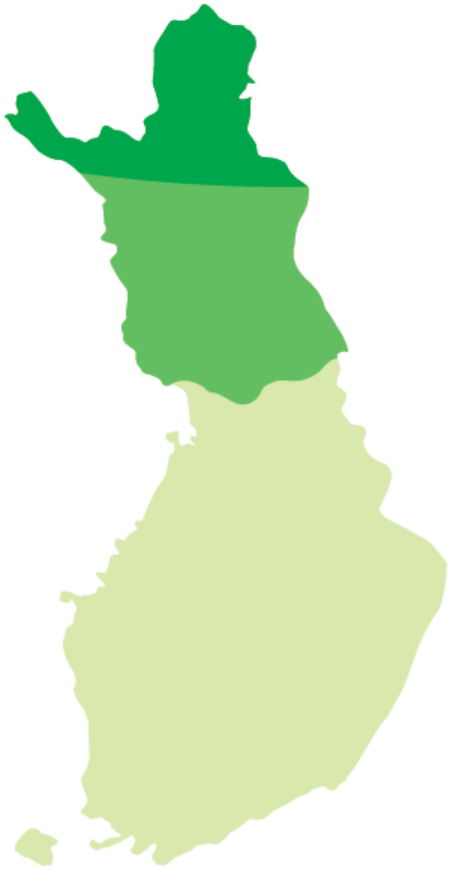
OF WHICH ADMINISTRATED BY METSÄHALLITUS

33%

Metsähallitus

1/3 Metsähallitus manages a third of Finland's land and water areas.

- Metsähallitus manages, operates and develops state-owned areas responsibly, in a way that maximises their benefits to society as a whole.
- The reconciliation of various functions and ecological, financial, social and cultural sustainability lies at the core of our mission.



MULTIPLE-USE FORESTS

32%

In forestry use

Limited forestry 4%

MULTIPLE-USE FORESTS

24%

No forestry

PROTECTED & WILDERNESS AREAS

40%

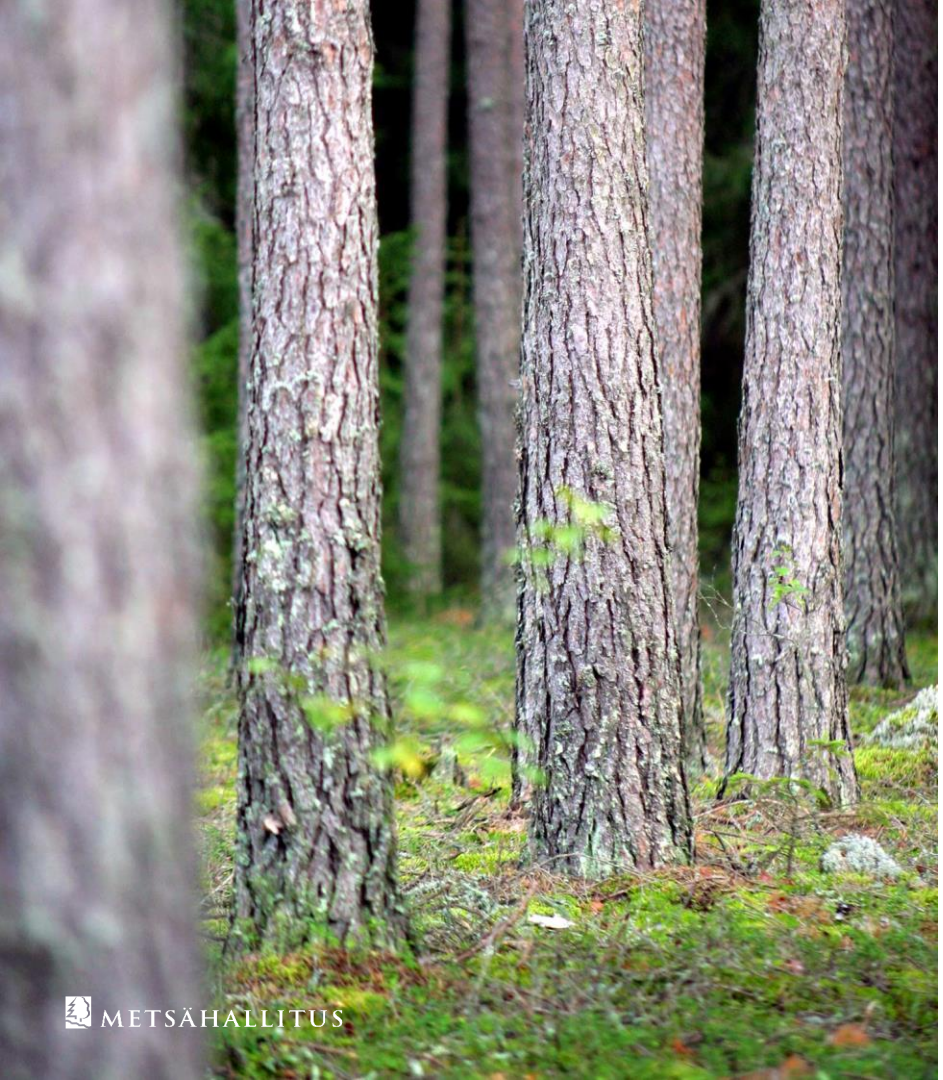
No forestry

The role of forestry in climate change mitigation

- To identify the importance of forestry areas in carbon sequestration and storage as a whole.
- To examine how carbon sequestration and storage can be enhanced through forestry measures.
- To create a carbon-based classification method as a practical tool for planning forest use.

› To improve Metsähallitus' ability to make climate-friendly decisions in its forestry activities.


Carbon classification in forests



Carbon classification in forests

- Includes all forest compartments in Metsähallitus' forestry areas (10.1 million hectares).
- This is based on Metsähallitus' forest inventory, soil information, land use information and landscape-ecological data.
- Areas with a similar sink and storage emphasis are grouped together.
- Some generalisation was required in the classification, which is why the end result may not necessarily be completely correct for every compartment.
- The work resulted in seven forest categories.
- The main division into two groups is based on different types of forest use: *Carbon sinks and carbon storages*.
- Each group is important as a carbon sink and carbon storage, but the emphasis varies.

Carbon classification in forests

Minor carbon storage

Understocked, low-productivity land, non-productive land, built-up land and other areas.

› The trees have no significance as carbon sinks or storages

Developing carbon sink

Young growing stands and open areas. Developing into a good carbon sink.

› Small significance as a carbon sink and storage.

Carbon sink to be developed

Multiple-use forest where the number and/or condition of trees is not ideal.

› Need for actions to develop carbon dioxide sequestration in the growing trees.

Increasing carbon sink

Multiple-use forest in good condition, a sufficient number of growing trees and timely forestry actions.

› The best sites for effective carbon dioxide sequestration.

Increasing carbon storage

Areas with young forests where forestry use is restricted for landscape, recreation or game management reasons, such as wood grouse mating displays.

› A good site for storing sequestered carbon in the tree stock. The trees in the area already contain a certain amount of carbon and their ability to sequester more is good in light of local conditions.

Significant carbon storage

Areas with mature forests where forestry use is restricted for landscape, recreation or game management reasons, such as wood grouse mating displays.

› The best site for storing sequestered carbon in trees. The trees already contain a lot of carbon. Their ability to sequester more carbon has decreased.

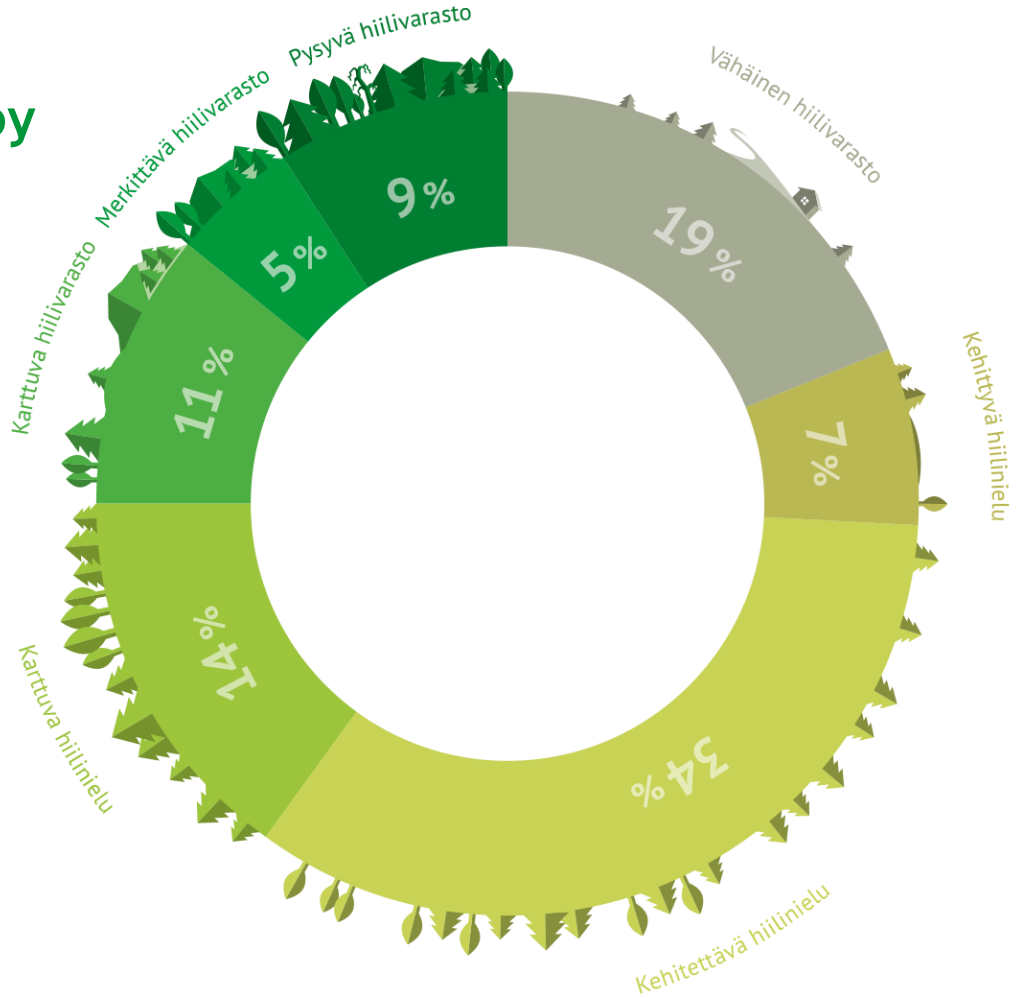
Stable carbon storage

Areas completely excluded from forestry operations. Mainly various nature sites and other areas outside the scope of forestry operations.

› A carbon storage that develops via natural processes, storage may also decrease due to rot. No forestry measures.

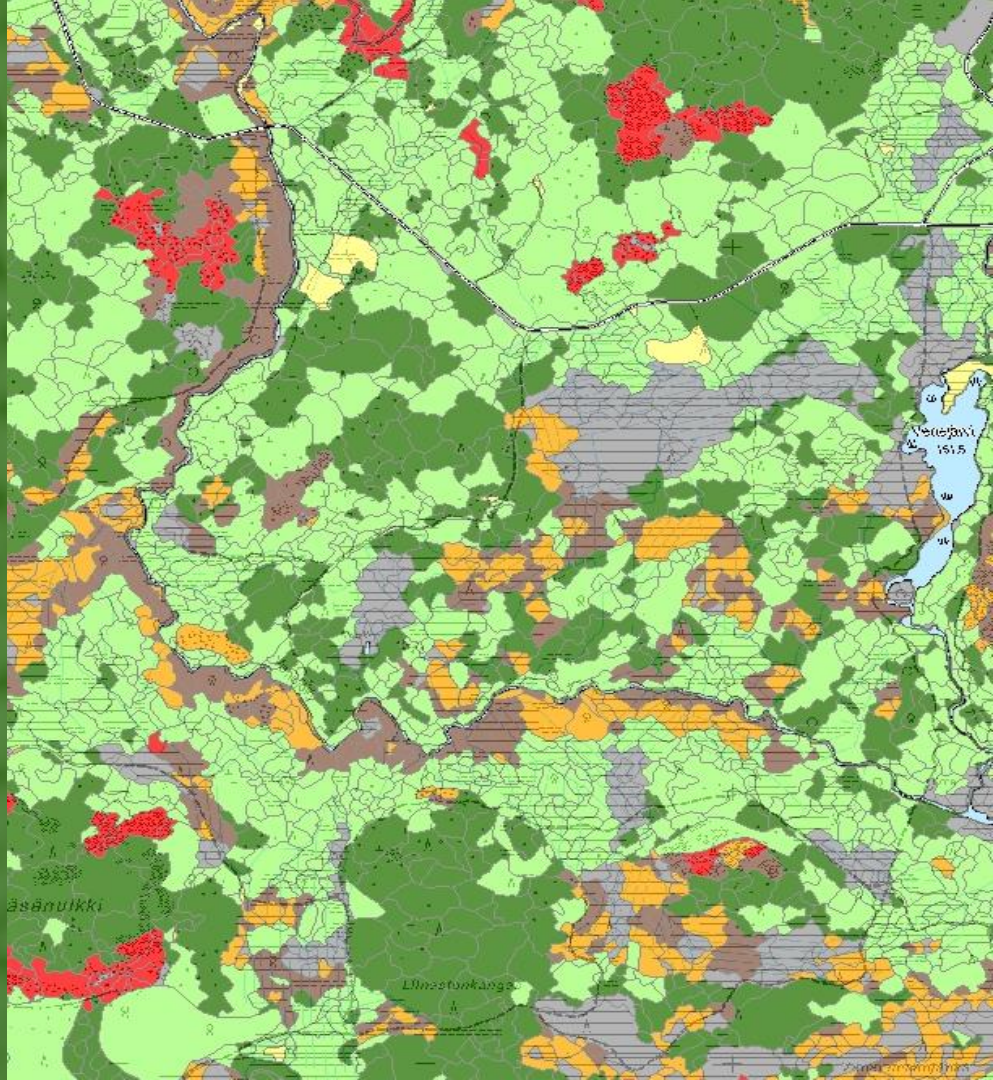
Number of forestry areas by category

- One third of Finland's land and water areas is administered by Metsähallitus.
- Forestry land, total 5.1 million ha.
- Includes forest land, low-productivity land, non-productive land, restricted forestry sites and nature sites.



Carbon classification by forest compartment

- Minor carbon storage
- Developing carbon sink
- Carbon sink to be developed
- Increasing carbon sink
- Increasing carbon storage
- Significant carbon storage
- Stable carbon storage



METSÄHALLITUS

Range of methods

- In addition to carbon sequestration and storage, the significance and impacts of actions were examined for soil carbon, business, biodiversity, water protection, recreational use, game, and reindeer husbandry.
- The viability of measures was examined in the evaluation.
- A more detailed picture of the most important impacts of the measures was created using long-term felling calculations.

Range of methods

- Most effective for carbon sequestration:
  - Fertilisation, ditching, regeneration using selectively bred seeds and seedlings, regeneration of underproductive forests, and afforestation.
- Most effective for carbon storage:
  - Improving forest density, prolonging the rotation period, restricting forestry due to other forms of use, forest management to enhance coverage, and restoration of low-productivity mires with drainage systems.

Summary of calculations

Prolonging the rotation period requires sacrifices:

- Metsähallitus' financial result will decrease for a long time.
- Regional economy impact, less employment.
- Carbon sequestration in trees will increase clearly to begin with, but decrease later. Soil carbon accumulation will drop.

Increasing forest density decreases financial return:

- Carbon storage in the trees will increase.
- Soil carbon accumulation and the amount of sawwood will decrease, especially over the next decades.

Fertilisation increases the amount of possible felling and the amount of sawwood

- Soil carbon accumulation will be greater.
- No change in carbon in the trees.

Conclusions

- Forestry operations in line with the current Metsähallitus forest management instructions already takes carbon sequestration and storing into account in an outstanding manner.
- Development will be achieved by applying the forest management instructions with climate emphases and by further improving the level of forest management.
- Focusing on carbon sequestration does not conflict with a good forest result.
- A strong increase in carbon storing in multiple-use forests can reduce forestry revenue.
- Increasing carbon sequestration by means of fertilisation is a worthwhile option.
- More effort must be put into restoring low-productivity mires with drainage.

Metsähallitus as a pioneer

Metsähallitus Forestry Ltd’s efforts to mitigate climate change does not involve one or several major changes.

It is good forest management and smaller changes and improvements that combine to form a significant entity.

Leverage from the EU 2014–2020

European Union
European Regional Development Fund

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www.metsa.fi

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#metsäteko

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