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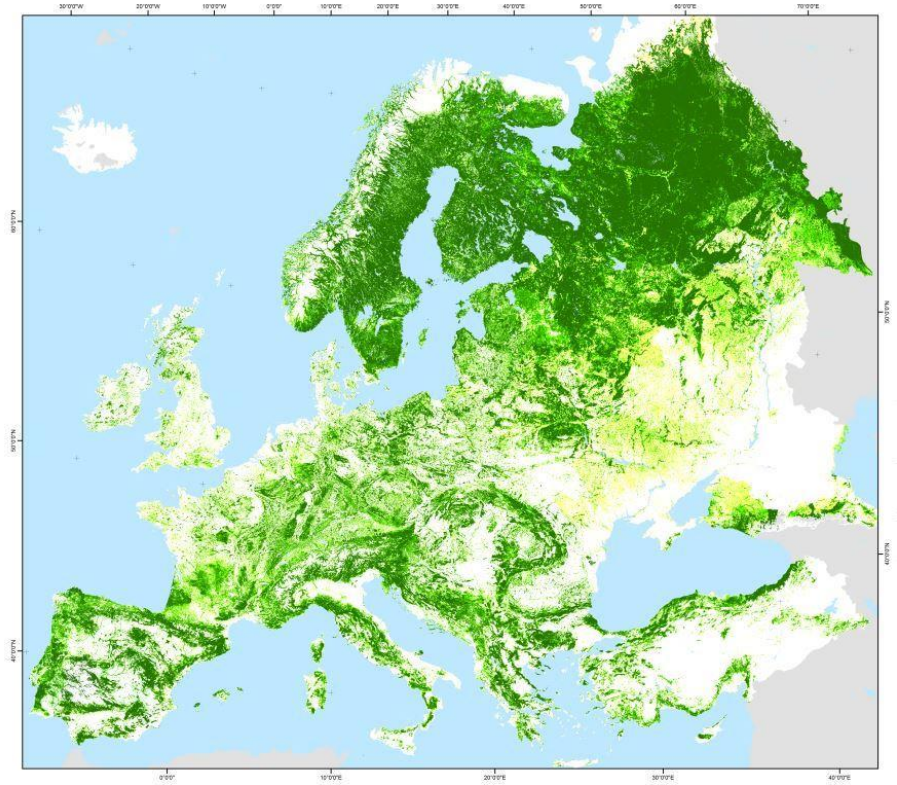
Finland's Forests – industry, climate, biodiversity and recreation

Antti Asikainen, Executive Vice President,
Natural Resources Institute Finland

Aalto ARTS Summer School

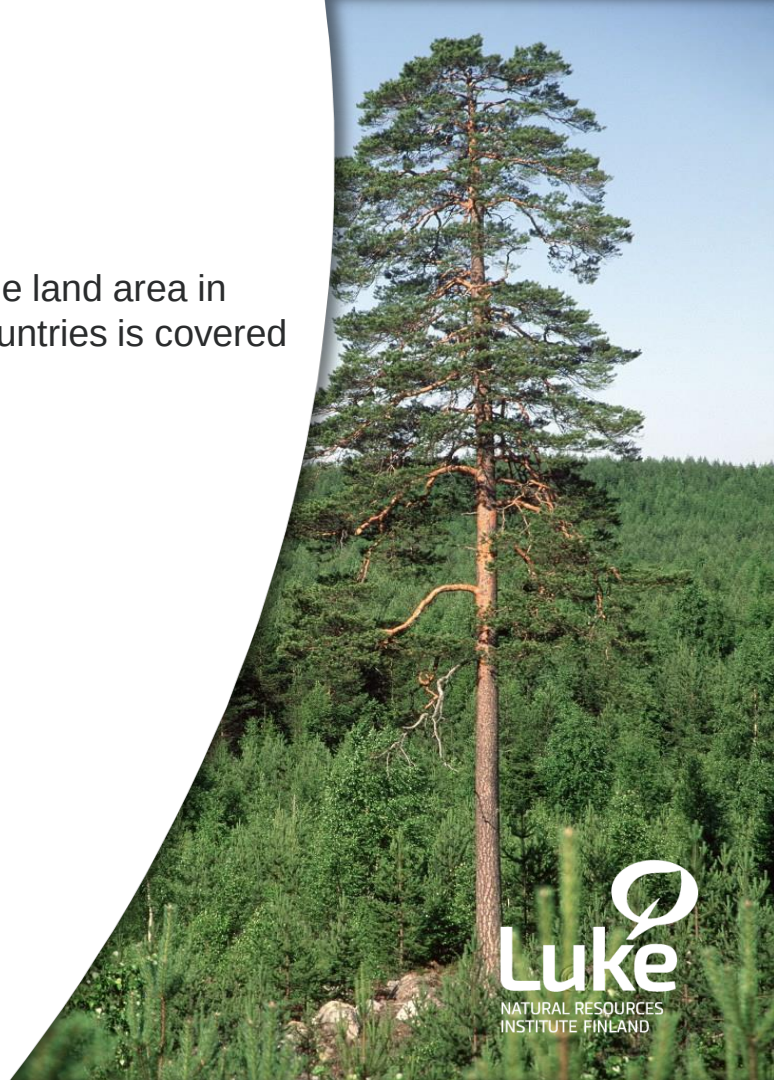
25.5.2023

European forest resources

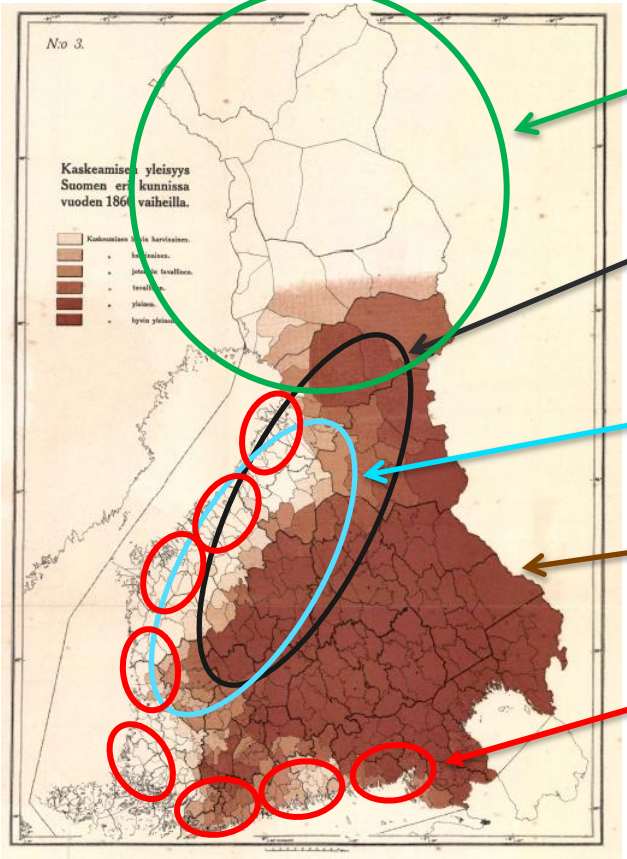


Most of the land area in Nordic countries is covered by forests

Source: Päivinen et al. 2003, Schuck et al. 2002, Kempeneers et al. 2011



Historical Land Use



Reindeer husbandry

Area affected by tar production during 1700 -early 1900

Lot of peatlands: fertile ones ditched for agriculture during hundreds of years,

Area affected by slash-and-burn culture in Finland in 1860

Area of sawmills and ship building around 1750

Heikinheimo 1915: *Kaskiviljelyksen vaikutus Suomen metsiin*

Historical forest use

Kuva 3. Yleinen käsitys Suomen metsävarojen alueittaisesta jakaantumisesta oli 1950-luvulle saakka sama kuin tässä C.W. Gyldénin 1850-luvulla laatimassa kartassa. Rintamailla ei ollut "kunnon metsiä" mutta syrjäseuduilla puuta kyllä riitti (vaakaviivoitettu alue) (Leikola 1986).

Distribution of Finland's forest resources in 1850 according to C.W. Gyldén.

Leikola, M. (1986). Metsien luontainen uudistaminen Suomessa I. Helsingin yliopiston metsänhoitotieteen laitoksen tiedonantoja 57.

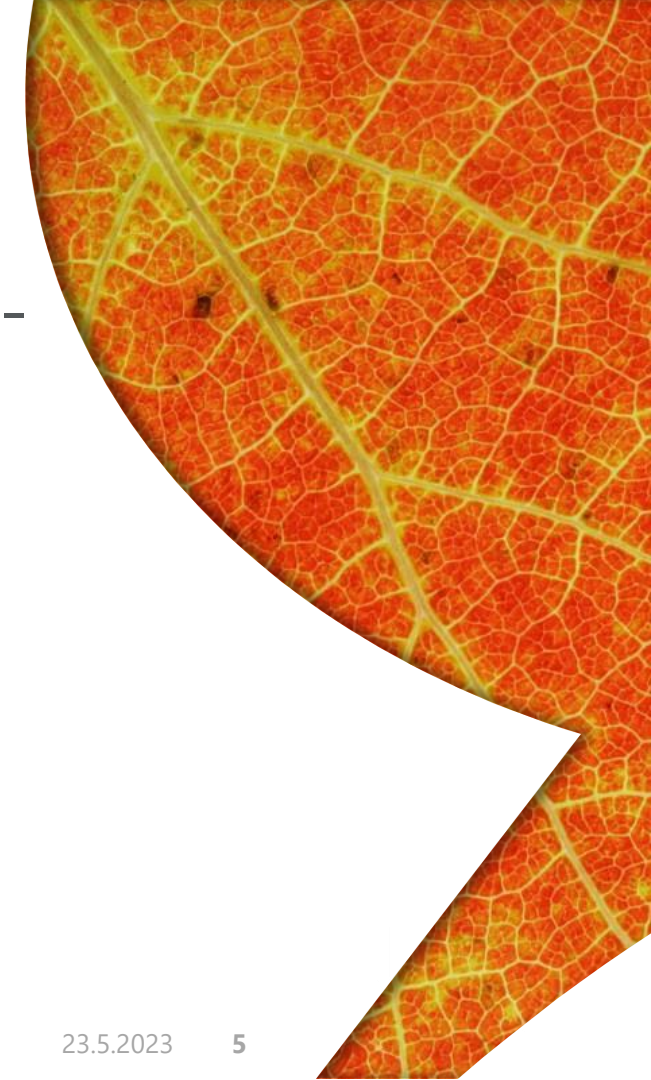
Change in the use of forests

The state of the forests in late 1800 - early 1900 led to concerns about **“sustainability”** of forest use

→ First forest law, forest assessments and inventories

→ New regulations: Old type of selection cuttings, i.e. cutting only logs was banned, obligation for forest regeneration

→ Research: development of silvicultural methods, tree breeding programmes…



How nature does regeneation?

Photo: Pasi Rautio, Luke

Forests regenerate usually after a forest fire or storm damage (opening new space for seedlings)

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Natural development

Photo: Pasi Rautio, Luke

200 year old pine forest: regeneration mainly by spruce

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Forest management:

Tree breeding programmes

Silvicultural methods: site preparation

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Forest management:

Silvicultural methods: seeding, planting, thinnings…


Photo: Metsälehti


Photo: STT, UPM, 4H

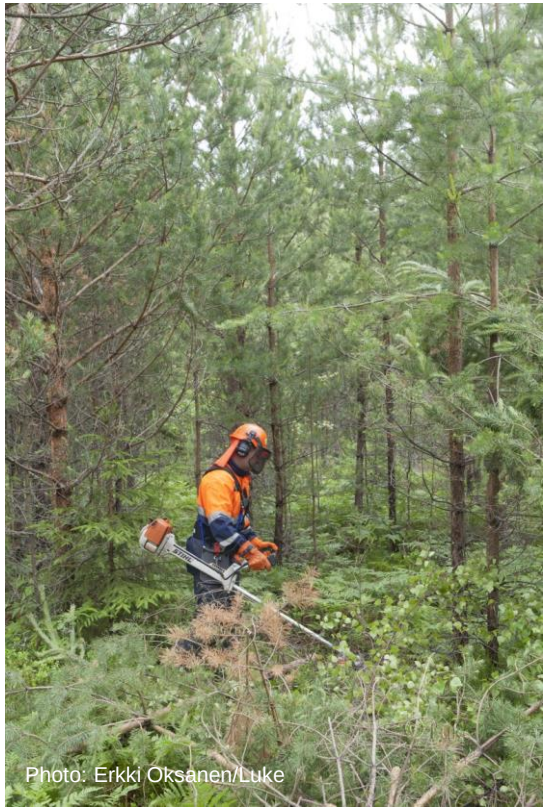
Photo: Erkki Oksanen/Luke

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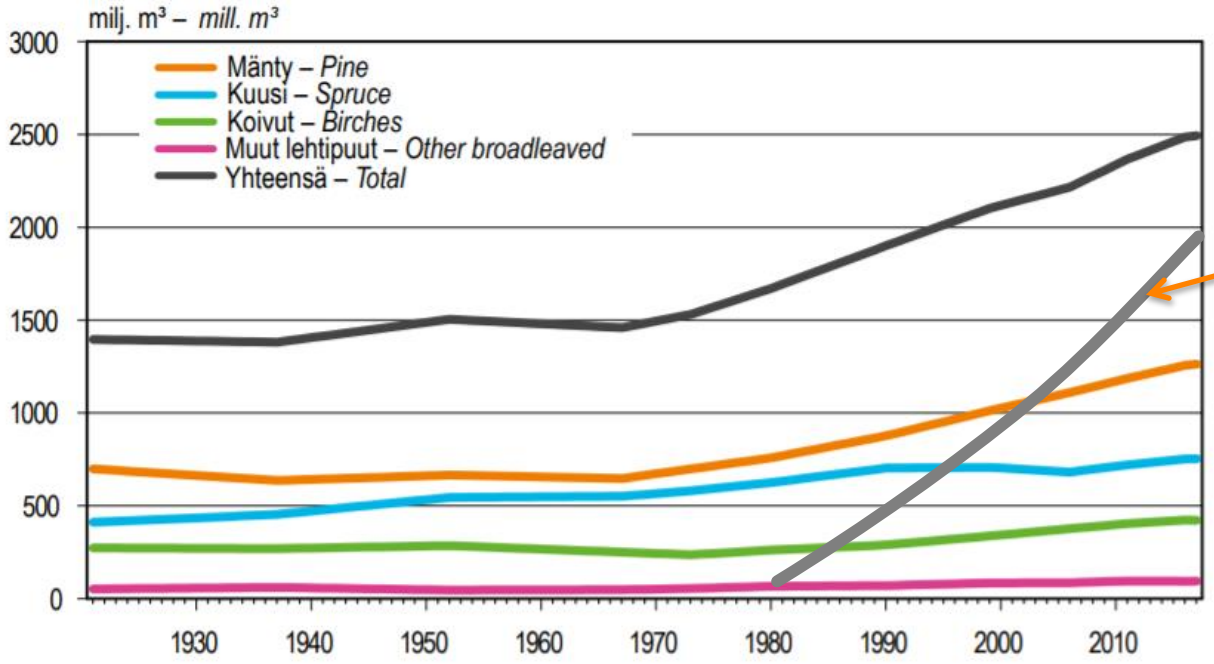
Forest resources increase despite harvesting

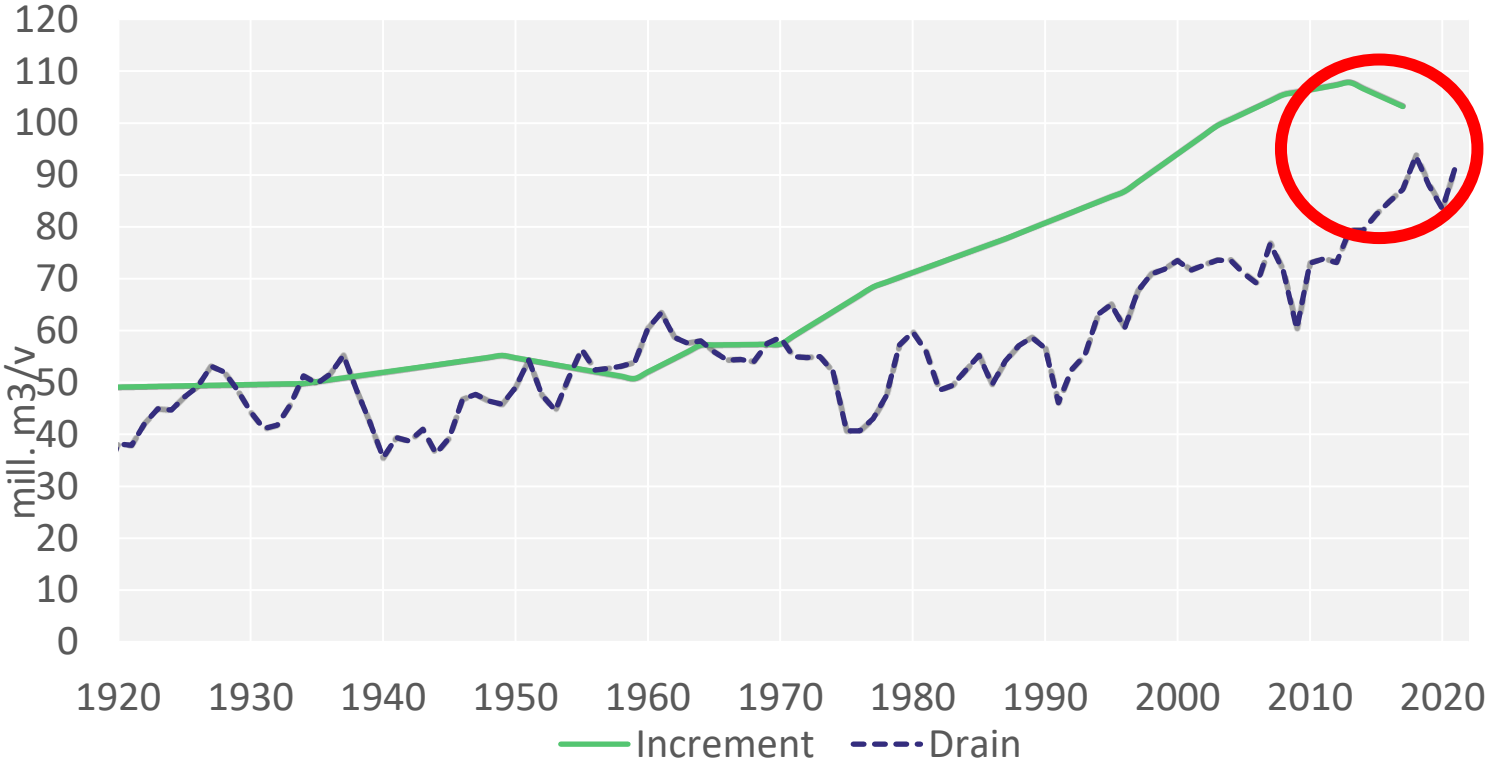


Cumulative Harvests since 1980's

Lähde: Luonnonvarakeskus, valtakunnan metsien inventointi
Source: Natural Resources Institute Finland

Kuva 1.5 Puuston tilavuus metsä- ja kitumaalla 1920-luvulta lähtien
Figure 1.5 Growing stock volume on forest land and on poorly productive forest land since the 1920s

Forest growth greater than harvest



Future potential: more timber by forest fertilization

Unfertilized control plot

Fertilized plot (wood ash fertilization)

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Sustainable bioeconomy and global challenges

Climate change

Biodiversity loss

Energy crisis

Economic sustainability

Environmental sustainability

Social sustainability

Economic wellfare

Security of supply

Population growth

Scarcity of natural resources

New needs (and demands)

Timber use now on sustainable level, but nowadays many other land use modes

- recreation, hunting, berry and mushroom picking, tourism, reindeer herding, carbon binding and storage, biodiversity conservation, landscape values
- National regulations and policy instruments: Forest law, Environmental law, National forest strategy, Certification…
- EU regulations and policy instruments: Biodiversity strategy, Forest strategy, Taxonomy, Natura 2000, Carbon offset, Ecological compensation…

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Biodiversity can be maintained in forests available for wood supply

New habitats for red-listed species in commercial forest stand
Lähde: Timo Lehesvirta, Sitra

Future potential: Effect of climate change?

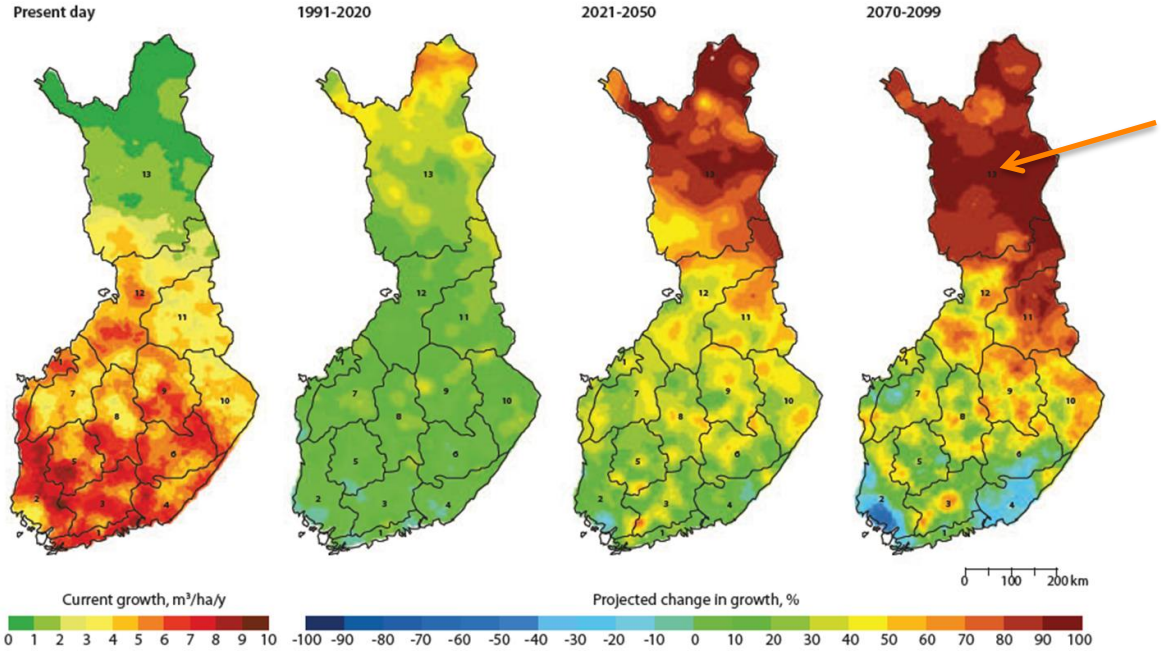

Figure 6.10 Integrated growth of Scots pine (*Pinus sylvestris*), Norway spruce (*Picea abies*) and birch (*Betula* spp.) under the current climate and under projected future climates in Finland. From left to right: total current growth and percentage change in total forest growth for 1991–2020, 2021–2050 and 2070–2099. The numbers on the maps refer to the Finnish Forest Centres. Kellomäki et al. (2005).

Compared to 1980's forest growth is predicted to be 100% higher

Kellomäki et al 2005. Adaptation of forest ecosystems, forests and forestry to climate change. FINADAPT Working Paper 4, Finnish Environment Institute.

Thank you!

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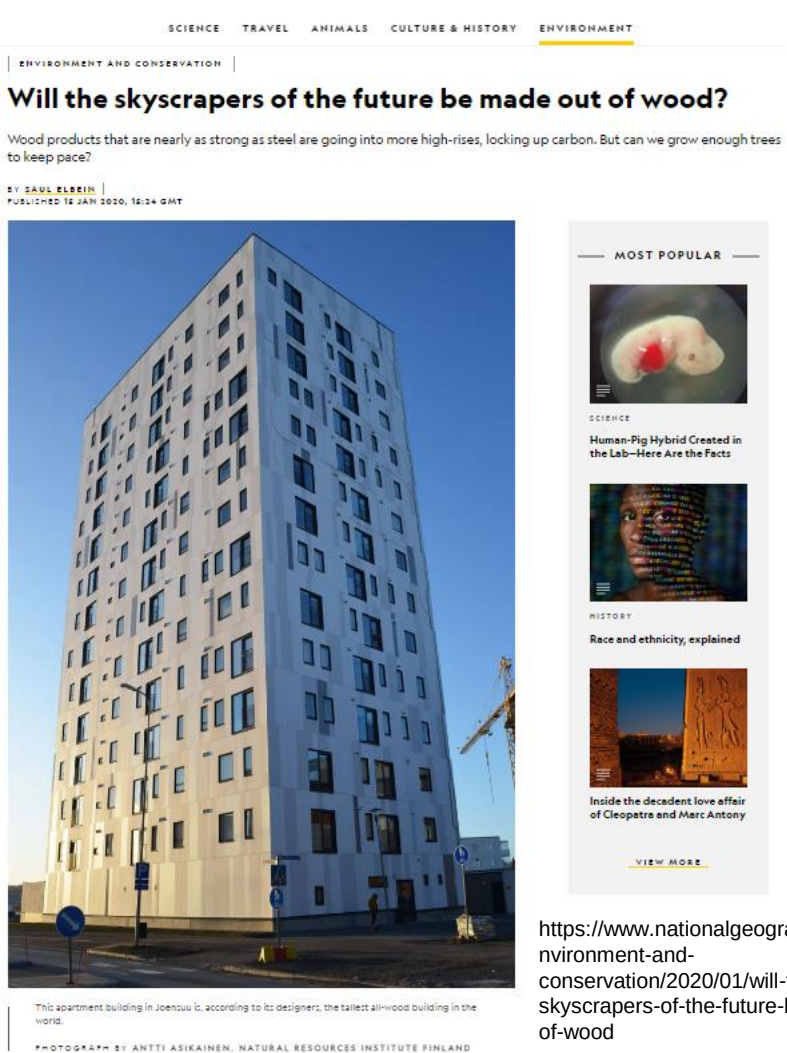

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ENVIRONMENT AND CONSERVATION

Will the skyscrapers of the future be made out of wood?

Wood products that are nearly as strong as steel are going into more high-rises, locking up carbon. But can we grow enough trees to keep pace?

BY SAUL ELBEIN
PUBLISHED 16 JAN 2020, 16:24 GMT

This apartment building in Joensuu is, according to its designers, the tallest all-wood building in the world.

PHOTOGRAPH BY ANTTI ASIKAINEN, NATURAL RESOURCES INSTITUTE FINLAND

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