Primary and Natural Forests in Sweden

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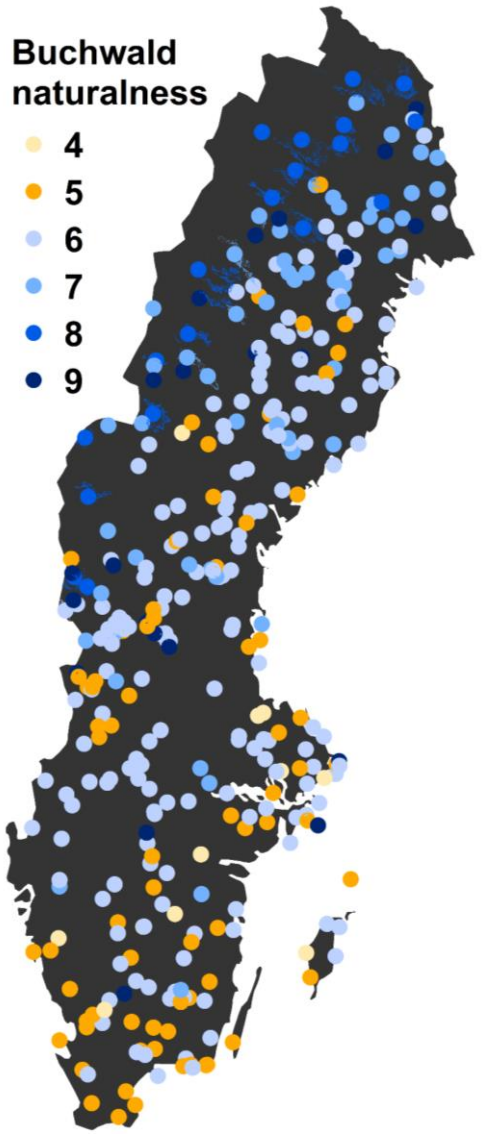
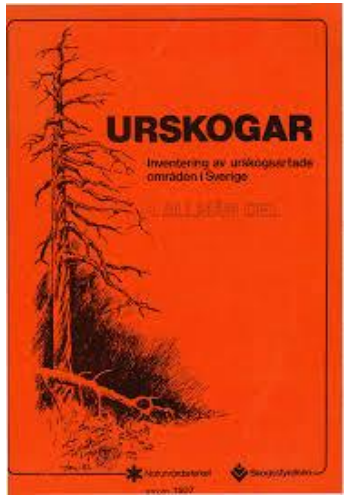
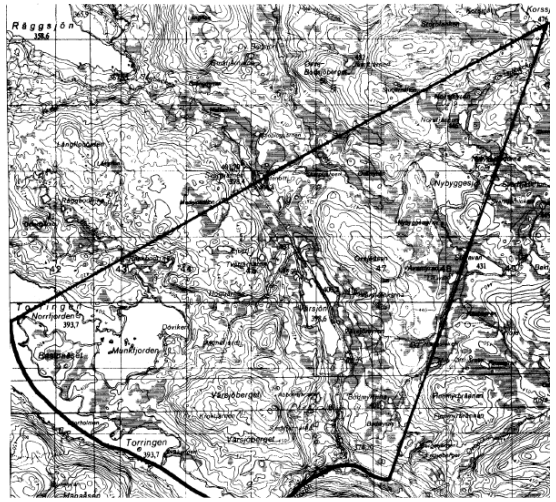
Primary Forests in Sweden







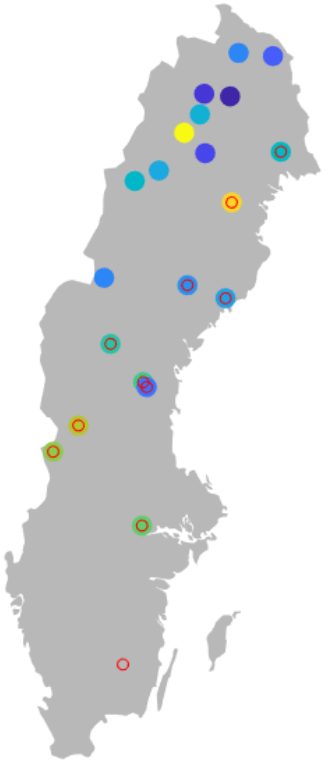
Based on an inventory from the 1970s and mapping by local conservationists.
Polygon borders updated using aerial photography and classified for naturalness based on management plans, protection documents and field visits.

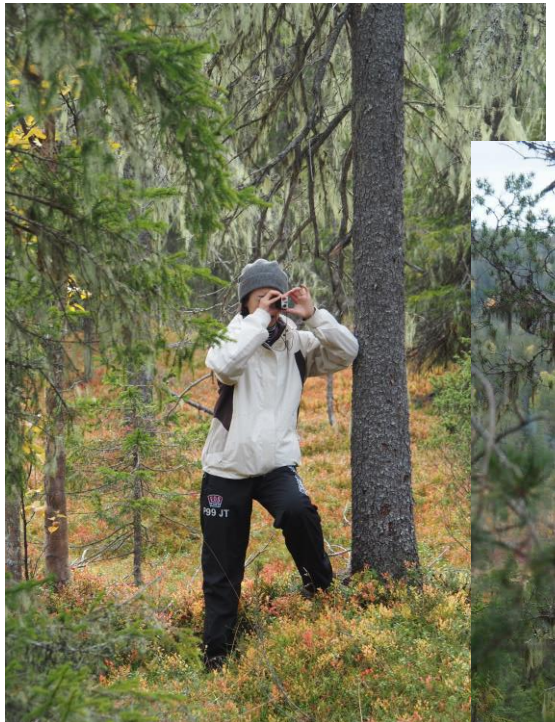
Classified by history, not present natural values!

~520 unique forests, (410 > n5) (70 added 2023)

~2.2% of productive forest land (> n5)

Inventory across Sweden 2020, 2021,2023





Mapping and inventory of the last primary forests in Sweden

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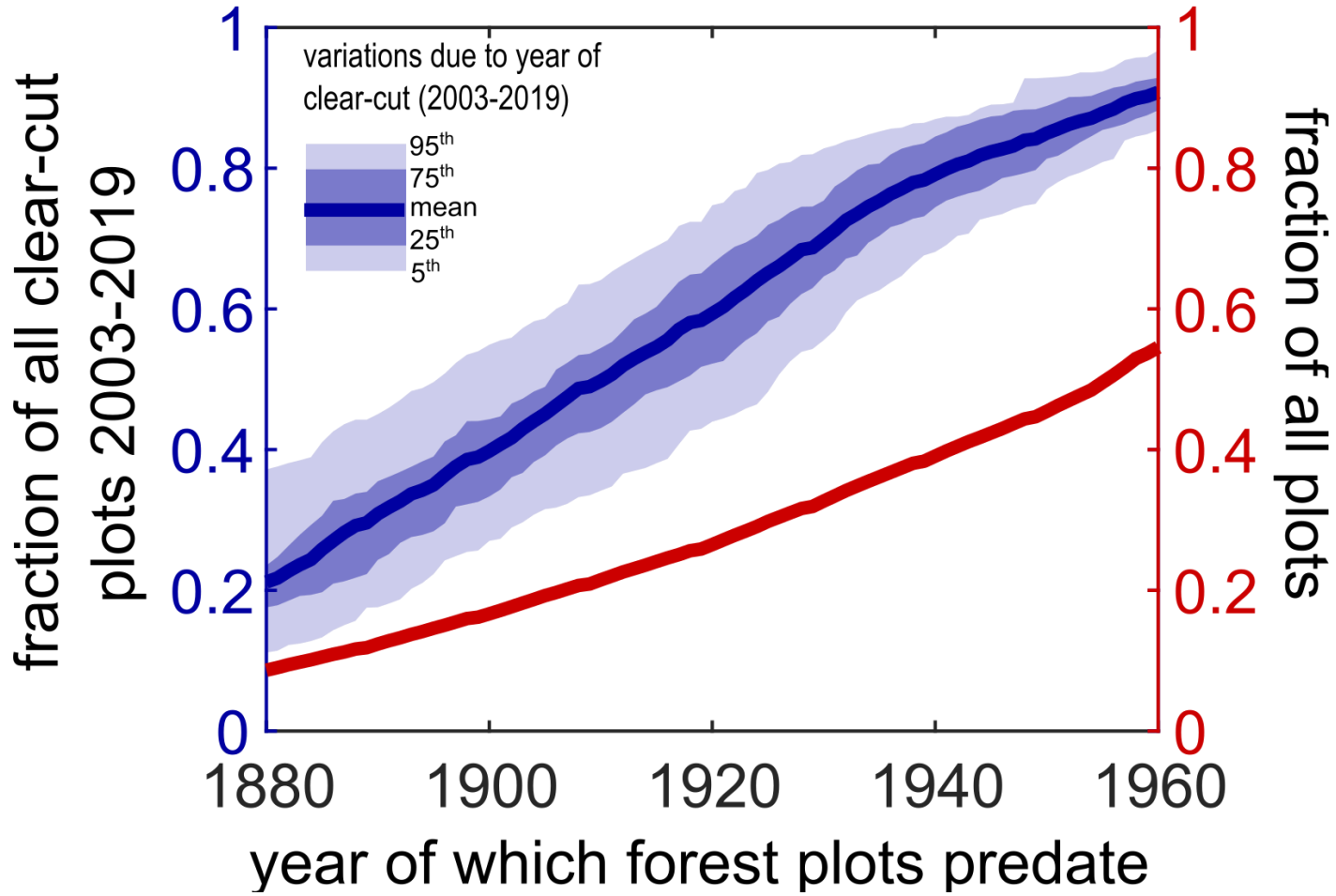
Natural forests (old-growth?) is another challenge

- There is no map of these forests but their areal extent is likely large
- A meaningful distinction is if a forest has been clear-cut or not
- In Sweden clear cutting may have started in the late 1800s, but the few quantitative studies existing describe around 10% having been clear-cut in 1910.
- This means that it is very unlikely forests that predate this age have been clear-cut
- We set a very conservative year of stand origin, 1880 to quantify losses of unprotected old uncut forests

NFI plots with stand age

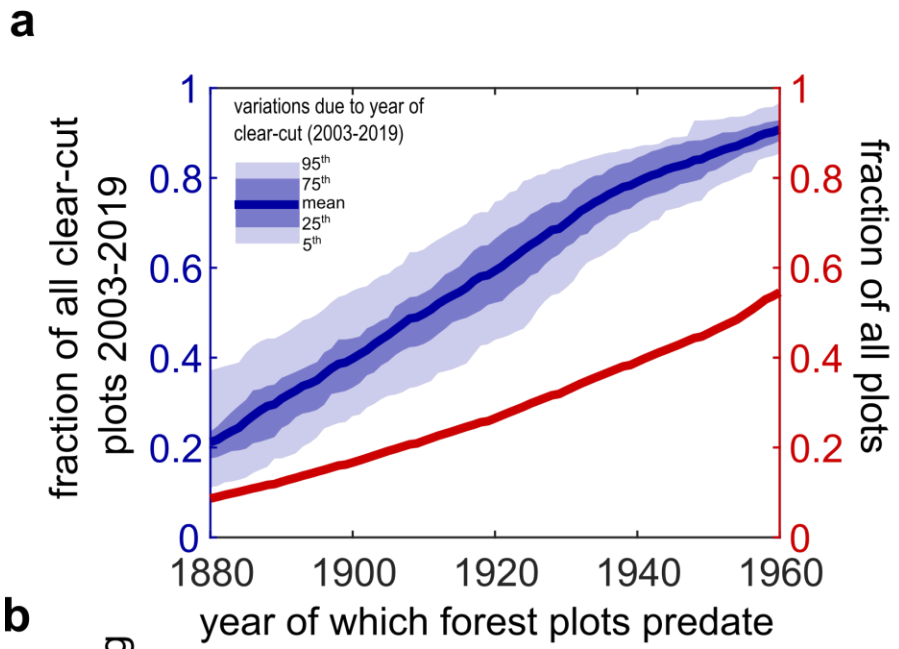
Polygon database on clear-cuts since 2003 (~1 million individual cuts)

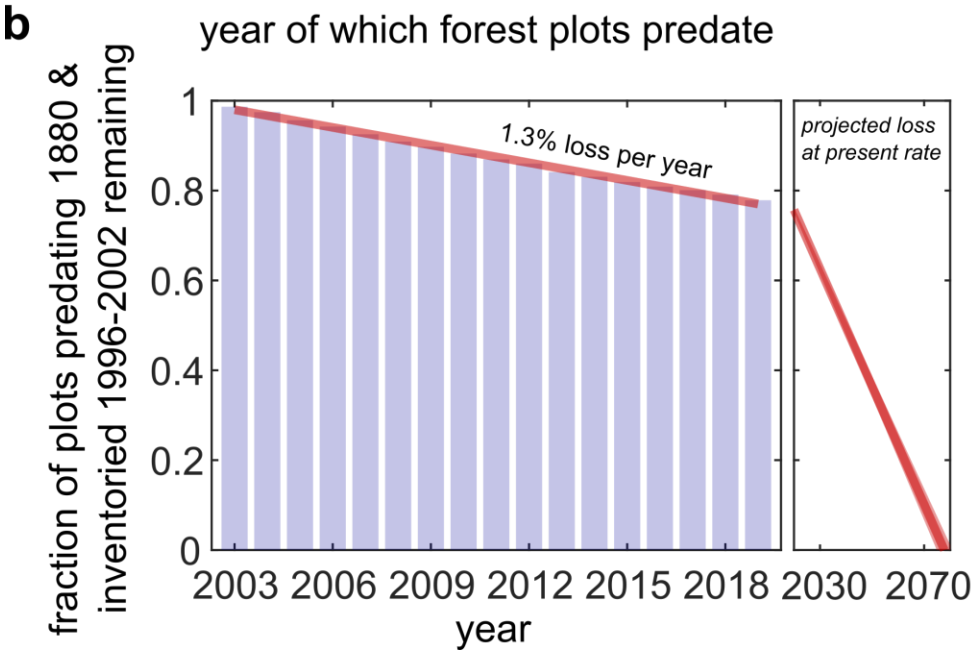
Old uncut forests are being cut, fast

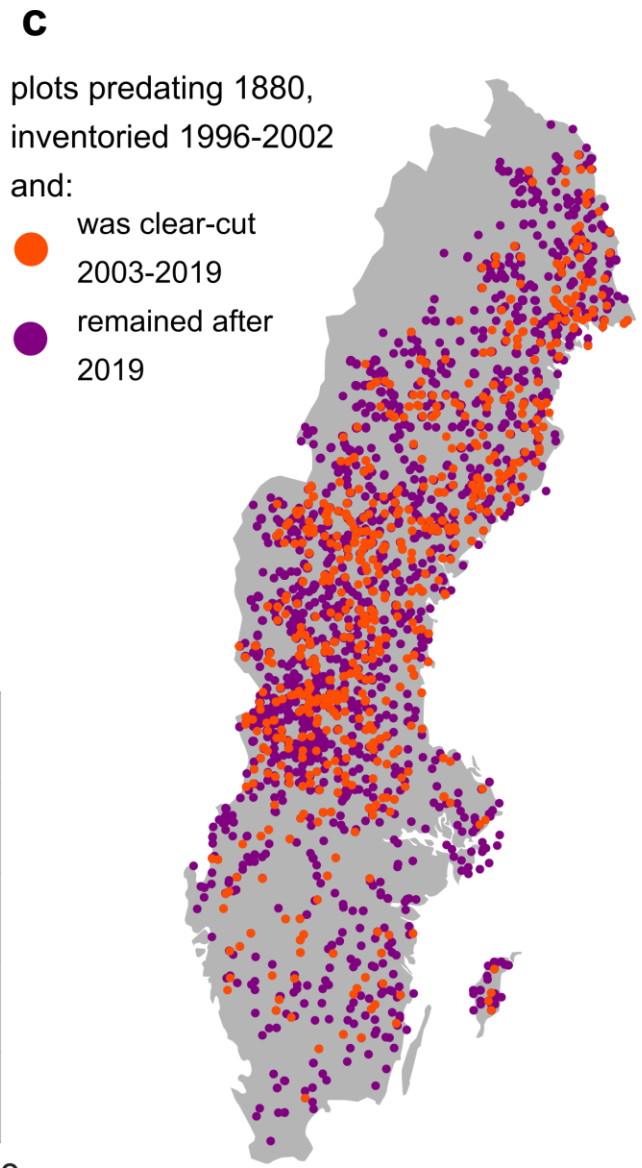


Ahlström, Canadell & Metcalfe. 2022

Old uncut forests are being cut, fast







Ahlström, Canadell & Metcalfe. 2022

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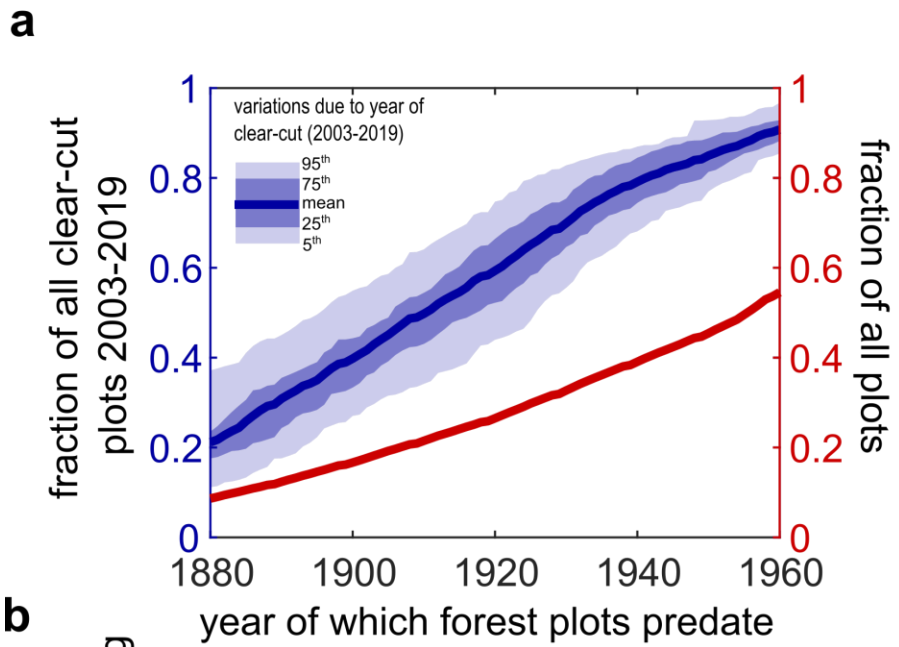
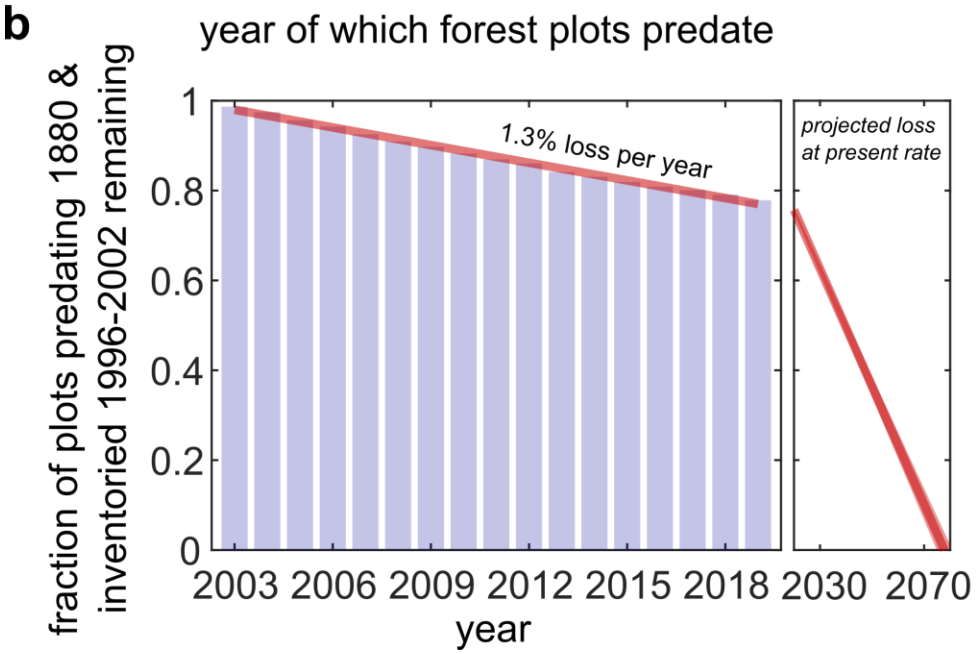
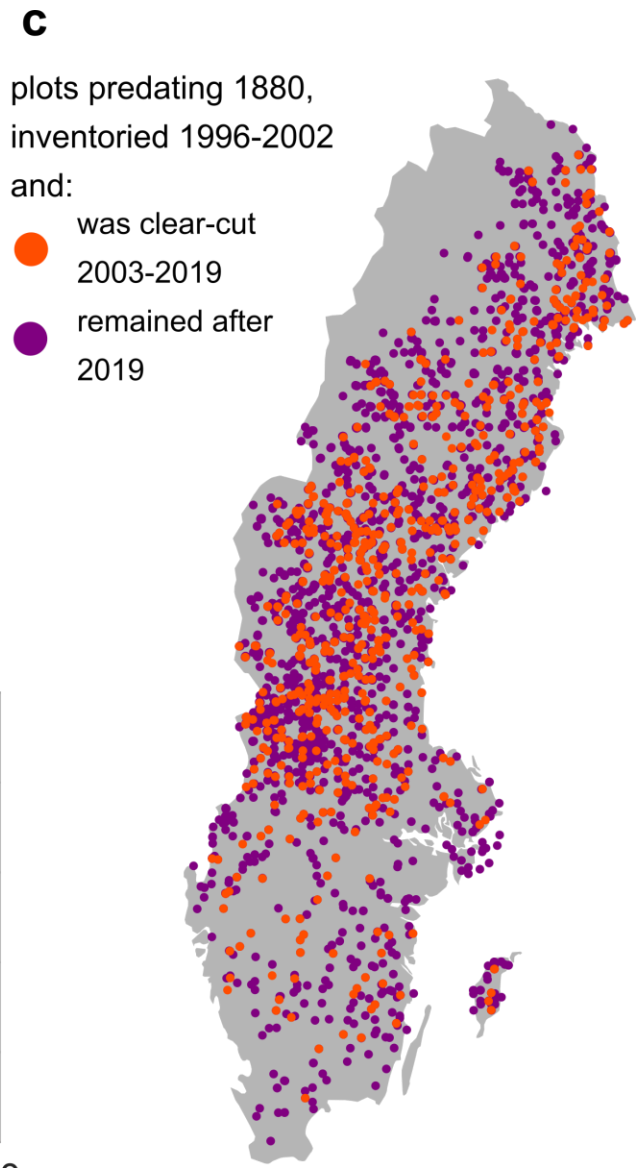




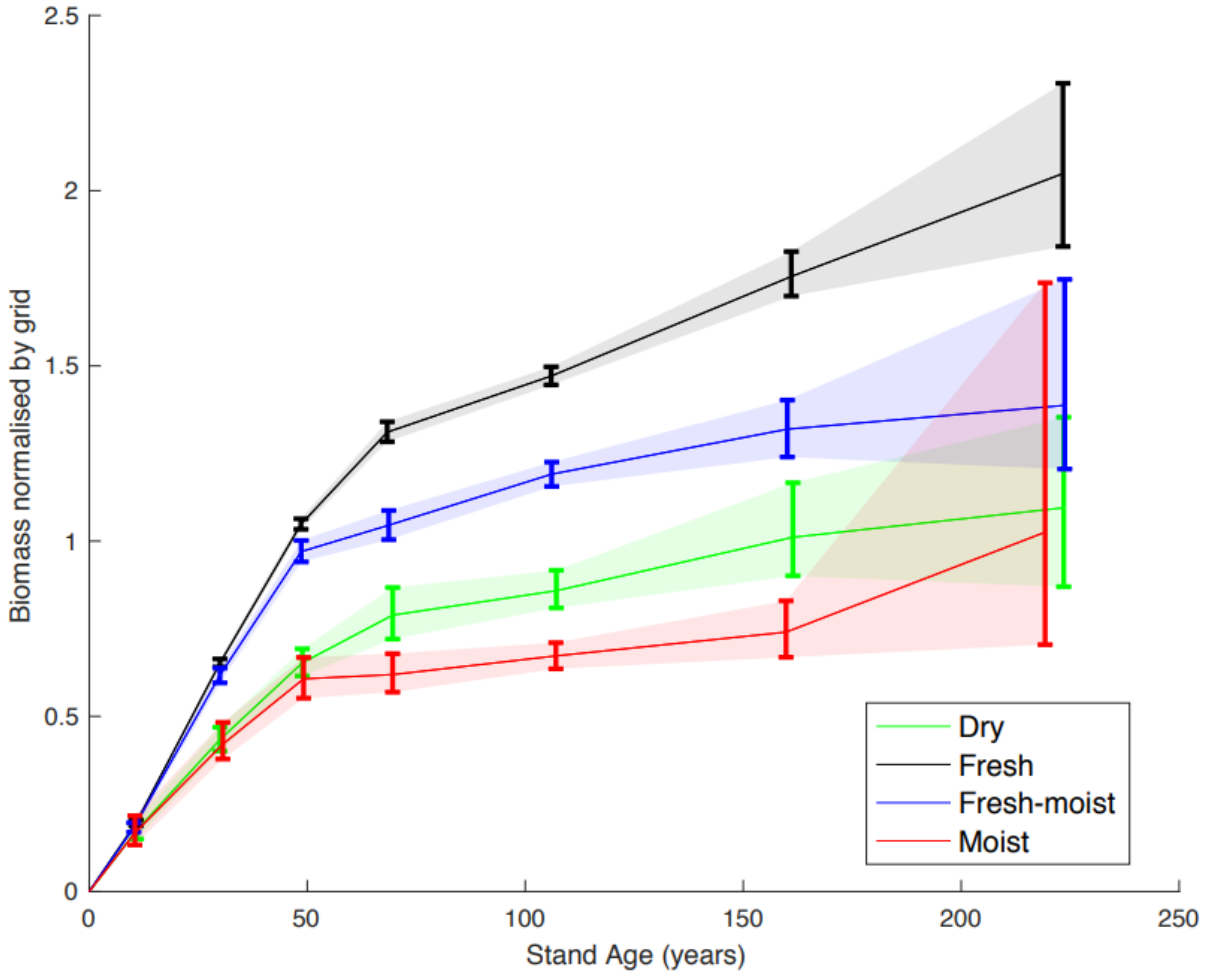


Its not about age!
Age was a tool to get to likelihood of past clear-cuts, aging previously clear-cut forests may be different.

Anecdotal evidence this is occurring across northern forests

Ahlström, Canadell & Metcalfe. 2022

Biomass continues increasing with stand age



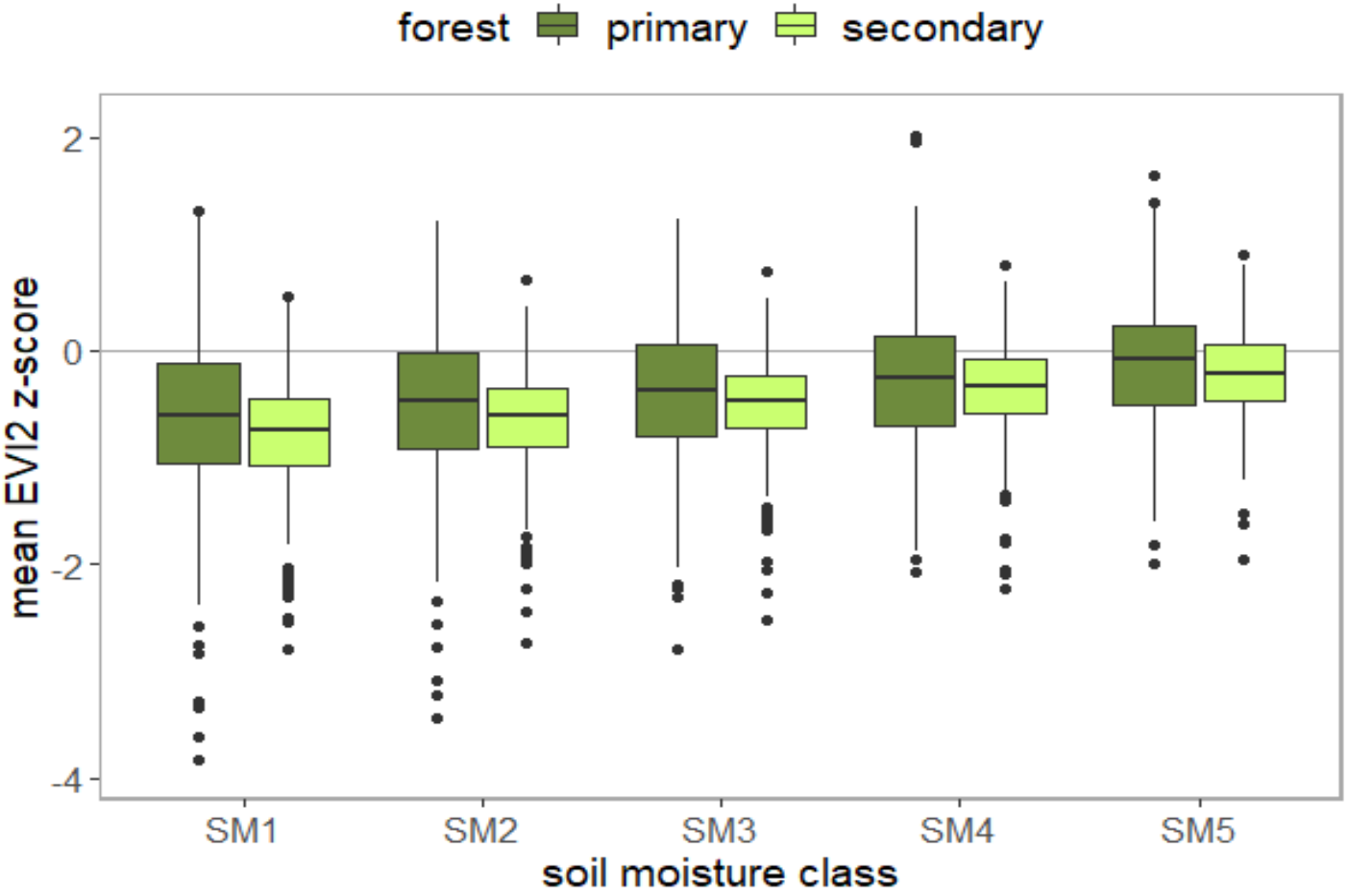
Important to note that this is not the same as biomass increase in natural forests, since their stand age may decrease with mortality!

Also lack of NFI data from old stands (i.e. 250 ->) and the analysis does not include the primary forests.

Can not be analysed with national statistics!

Emily Register, master thesis, 2023

Impacts of the 2018 drought



Wolf, et al. 2023

In preparation

C storage in primary forests, vegetation, dead wood and soil to 1 meter, with comparison to managed forests

Changes in biomass in primary forests over time, are primary forests accumulating or loosing biomass and dead wood?

Primary – managed differences in biodiversity

Description of our primary forest map, where are the forests and why are they there?