OrgBalt
LIFE project

Functioning of peatlands
– implications for land-use impacts

Life OrgBalt and JustFood Joint Webinar

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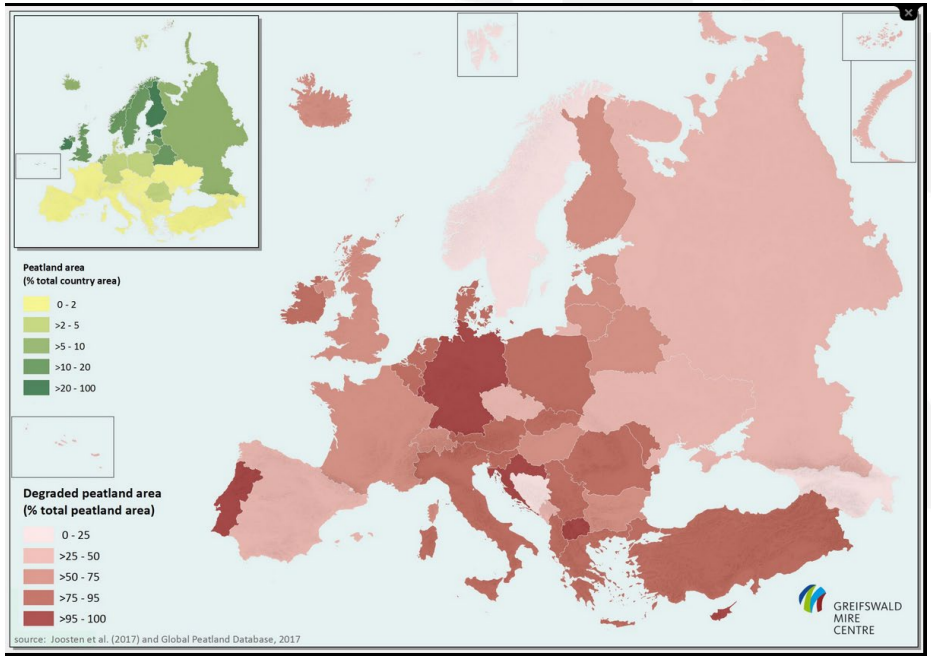
LIFE OrgBalt, LIFE18 CCM/LV/001158

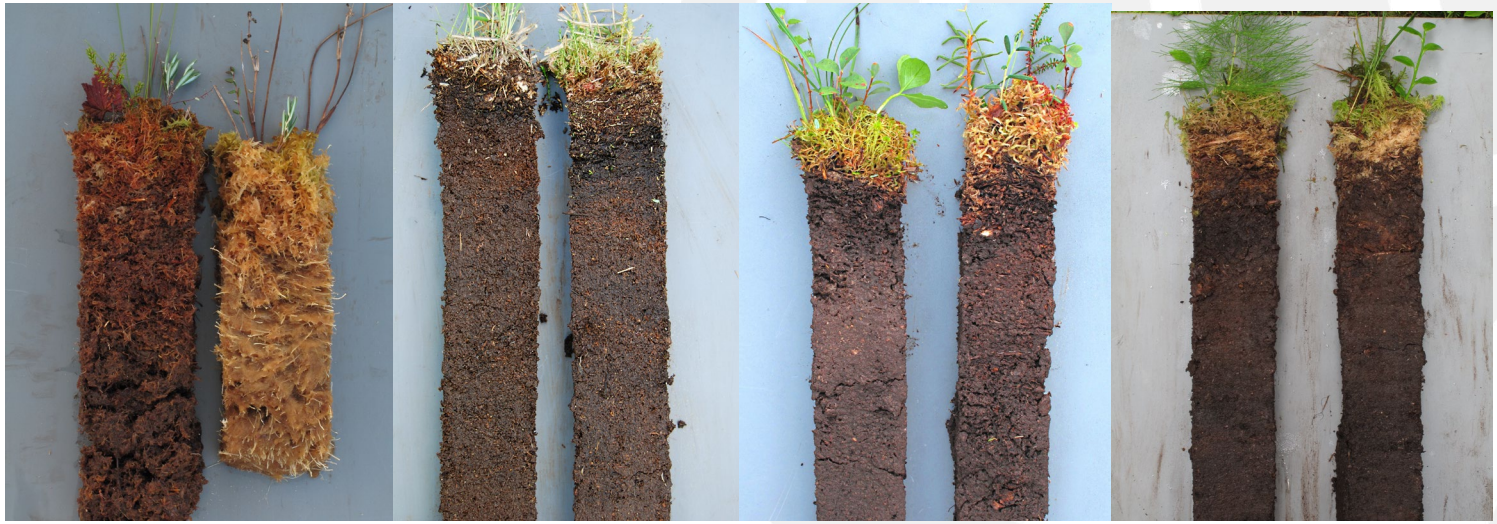
EU LIFE Programme project
"Demonstration of climate change mitigation potential of nutrients rich organic soils in Baltic States and Finland"

Bits of useful peatland trivia

- "Peatlands cover 3% of global land area, but hold one third of global soil carbon" (both figures are a bit uncertain but the information they transmit is correct)
- In most of Europe, >50% of peatland area is drained and under agriculture, forestry, or peat extraction (or has been abandoned from such use)

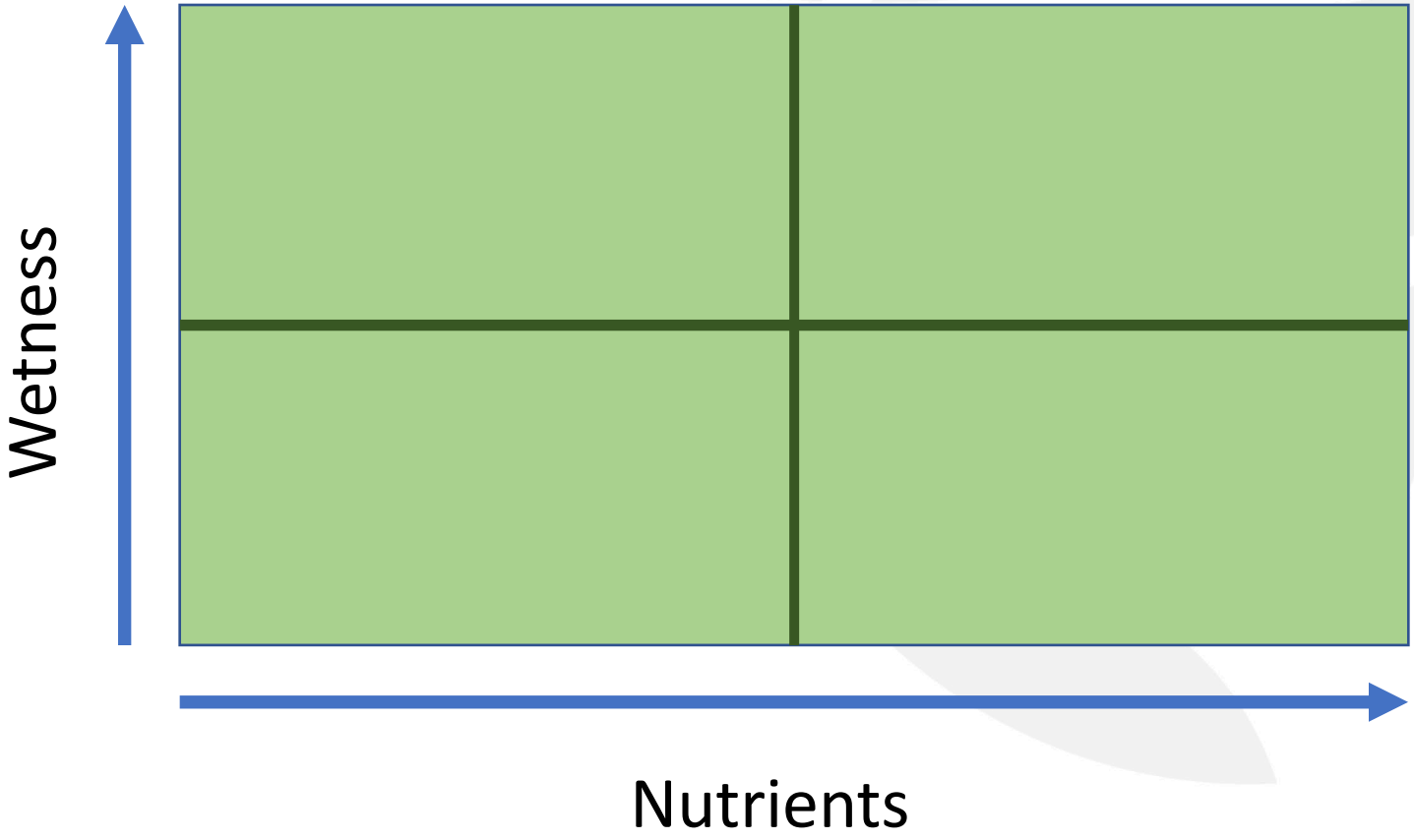


All peatlands are not the same
All peat is not the same

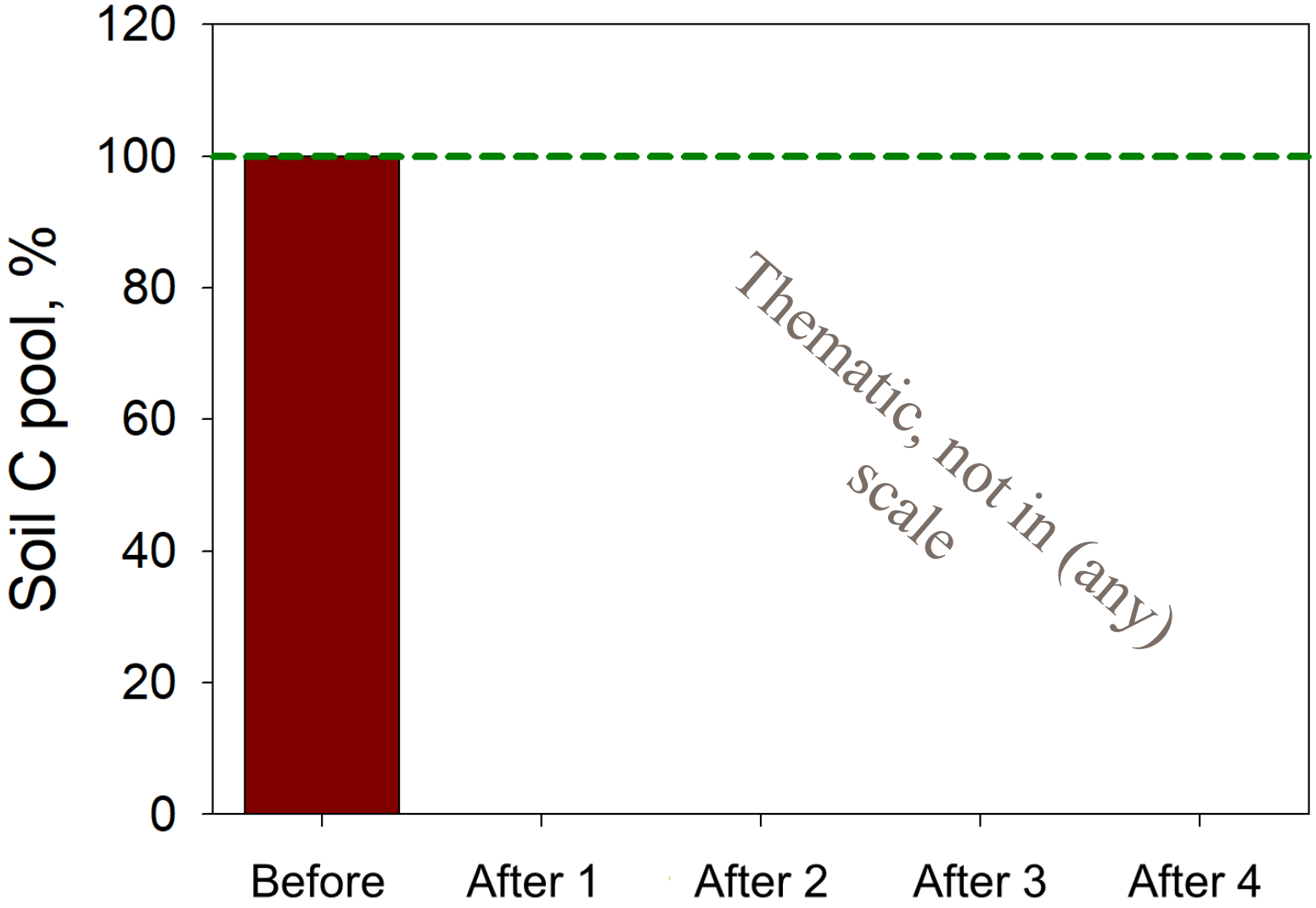


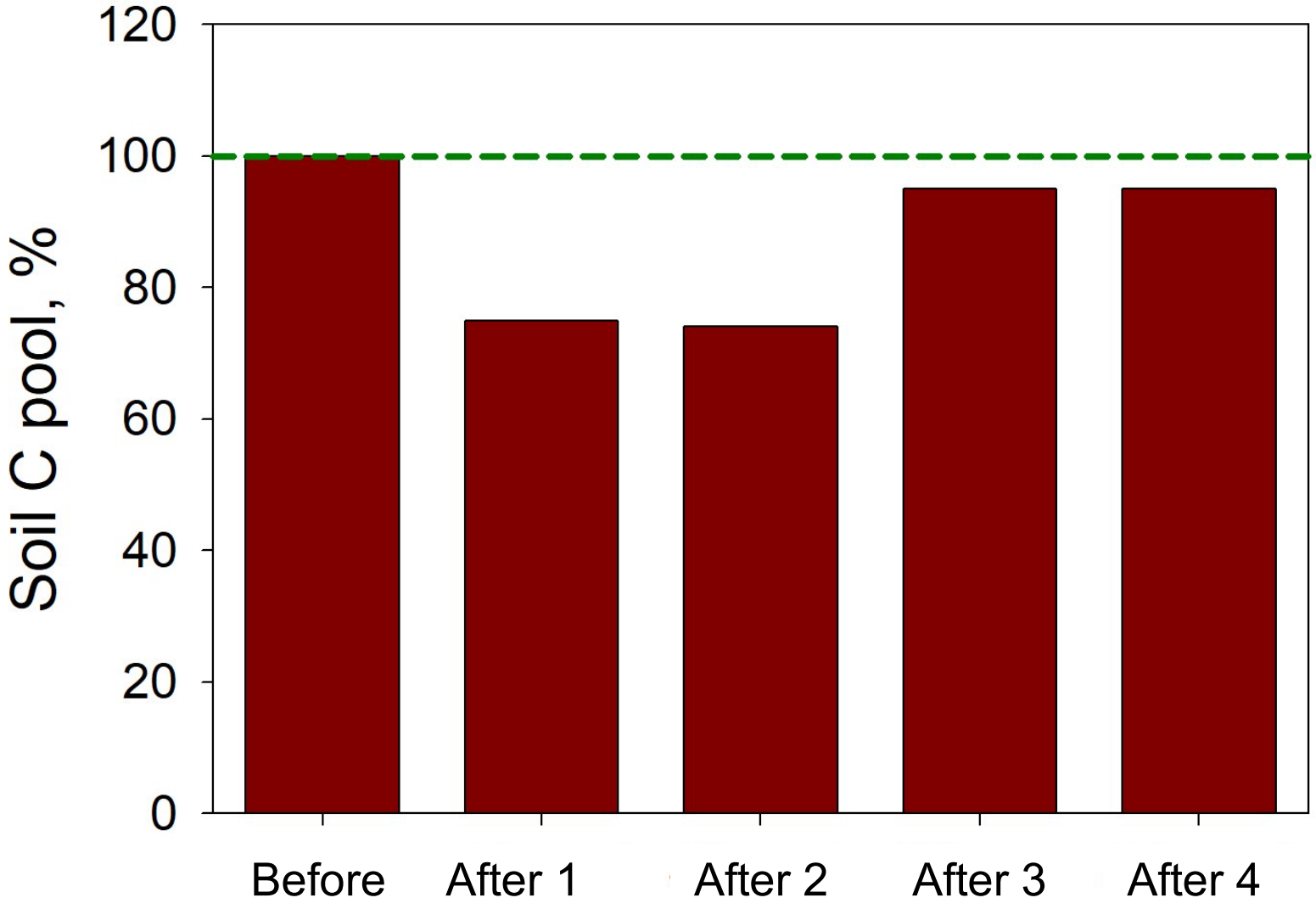
Environment and vegetation shape peat quality, peat quality regulates all soil processes, everything changes when something changes.

"The minimum to consider"



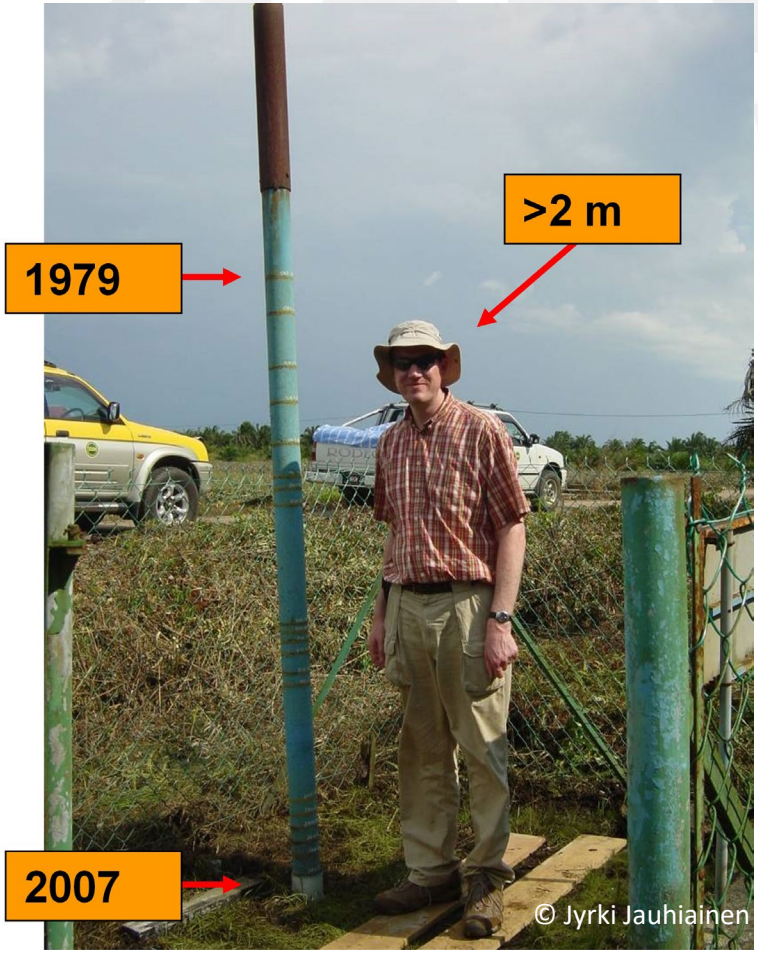
Peat at the time of drainage, and the potential changes




Soil C pool, %
120
100
80
60
40
20
0
Before
After 1
After 2
After 3
After 4

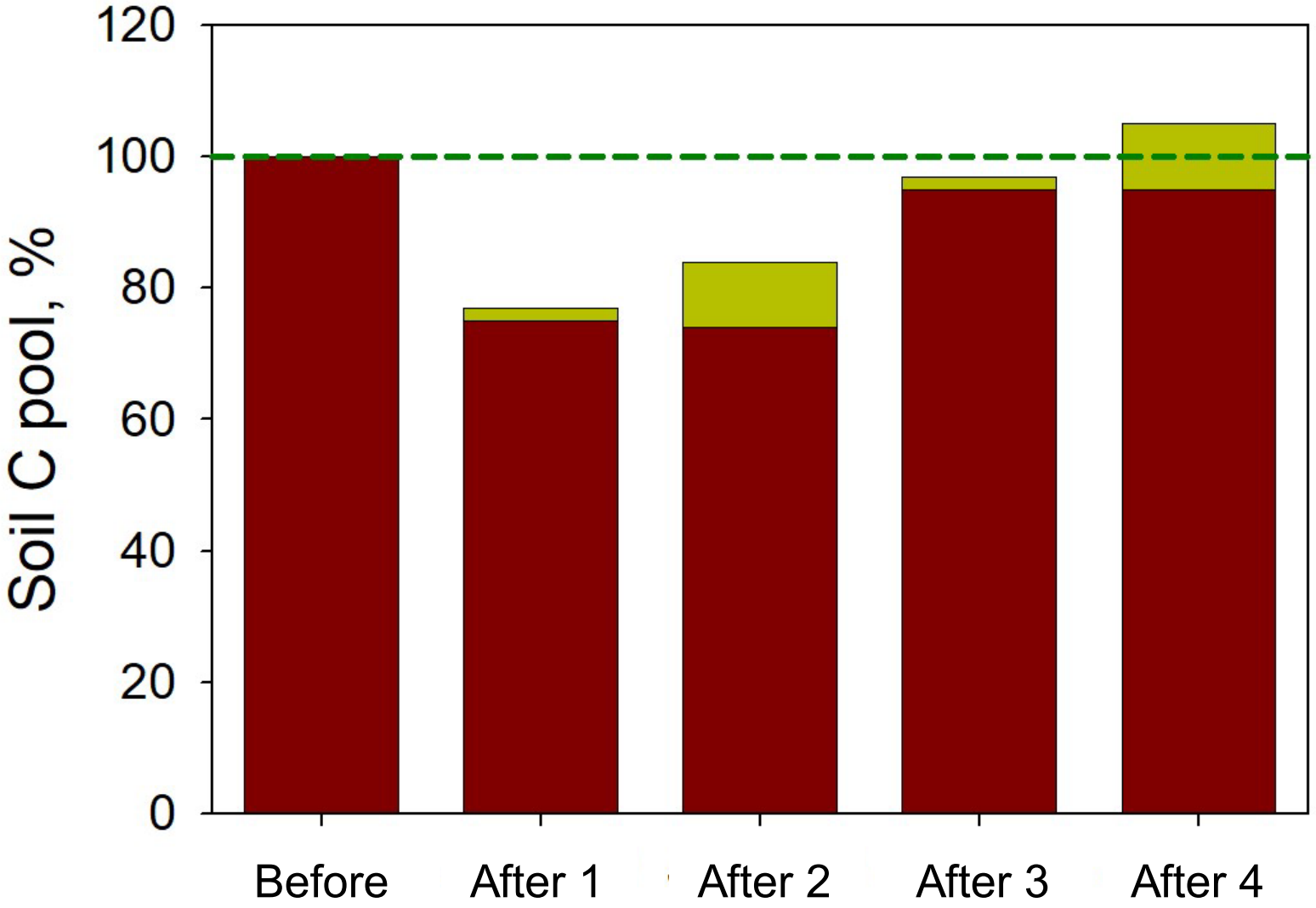
Fastest loss under agricultural use and warm climates

East Anglian Fens, UK, 4 m / 150 years

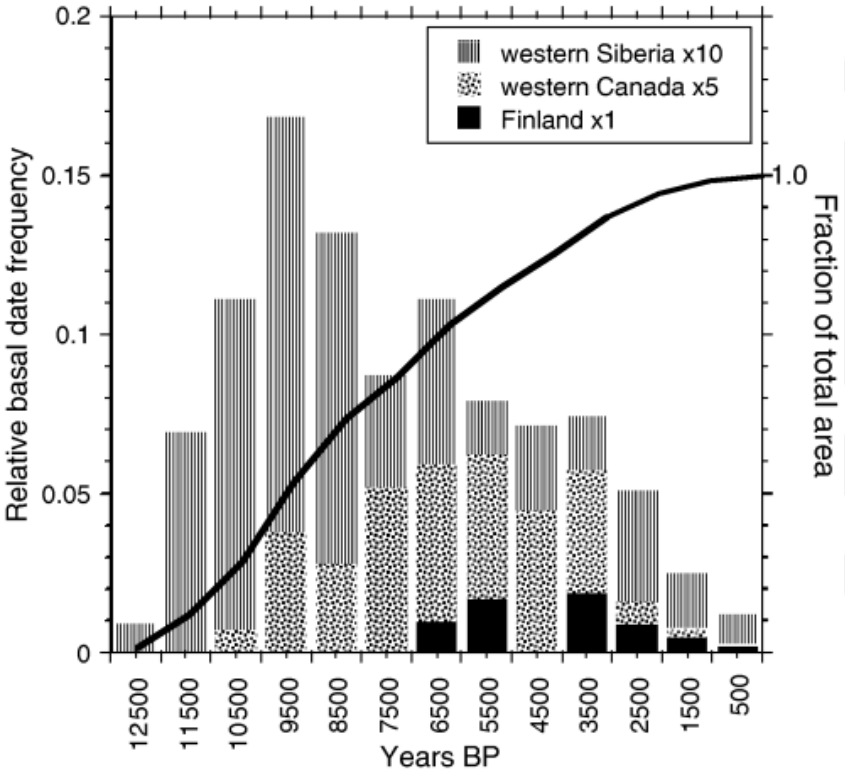


Malesia, >2 m / 30 years

New plant litter inputs have an effect



Why we should pay special attention to peat



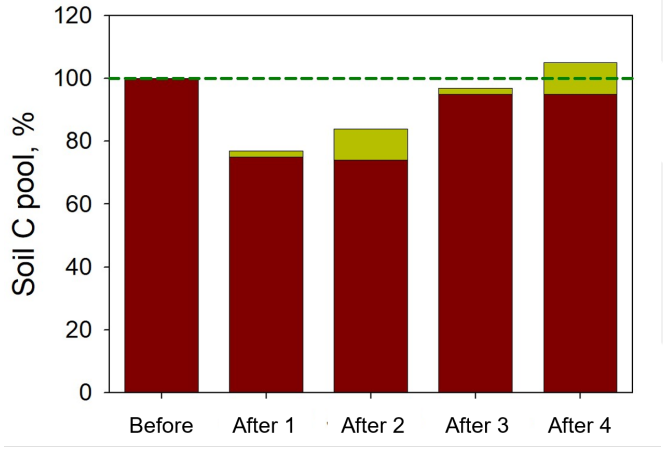
Northern peatlands are quite old, and peat C has been away from the atmosphere for millennia

Vegetation in managed systems is mostly circulating C from and back to the atmosphere at varying, much shorter time scales (years to centuries)

Frolking and Roulet 2007, Global Change Biology, https://doi.org/10.1111/j.1365-2486.2007.01339.x

New plant litter inputs do have an impact, however

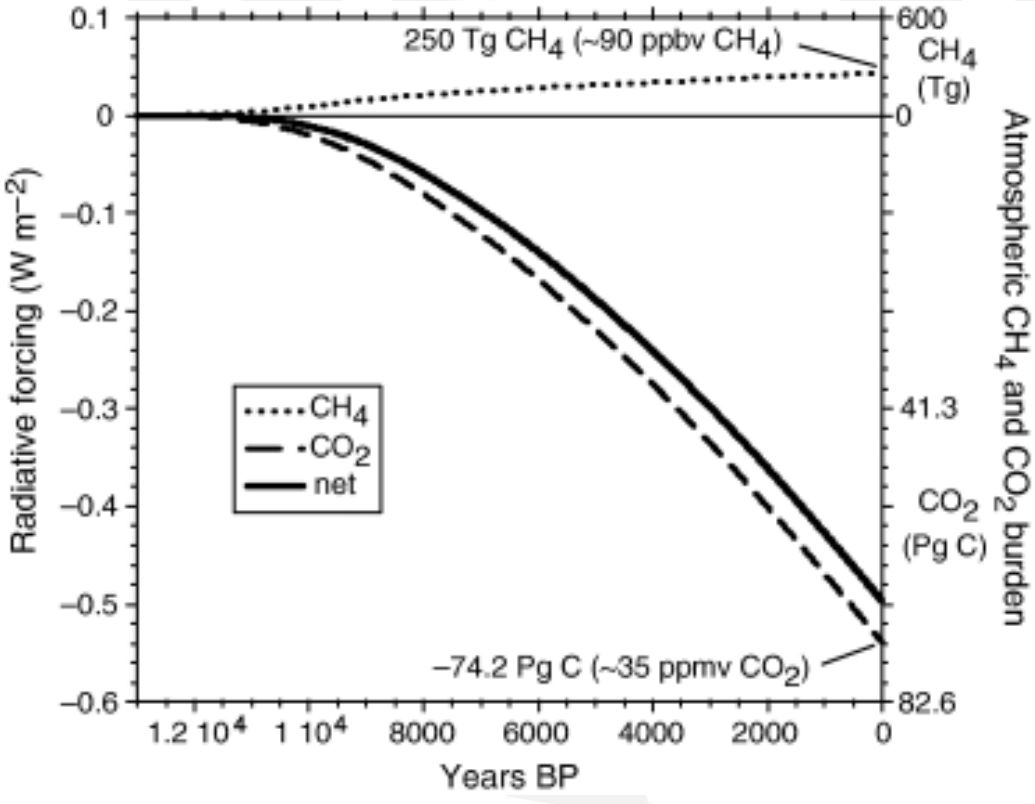
- In cases where creating a net sink of soil C cannot be reached with easy and fast measures, it is good to aim to reduce the loss of C
- Reducing the loss in a system that is continuosly losing C is as useful as increasing the sink in a system that is continuosly sequestering C, when we consider atmospheric GHG concentrations



What about methane?

Even though CH_4 is a stronger greenhouse gas than CO_2, its impact in longer term is minor compared to peat accumulation

(Frolking and Roulet 2007)



* Peat soil is a highly dynamic system that lives – or dies – on the balance of fresh C inputs and decomposition
* Protecting peat C pools has more impact in long term on atmospheric GHG concentrations than introducing plant-related C capture in managed peatlands
* Introducing plant-related C capture is much better than doing nothing!

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