

# Why peatlands matter in regards of climate change mitigation

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Peatlands are lands with peat at the surface. In living peatlands:

- Production of organic matter is larger than decay
- Dead plants accumulate as peat



Kolkheti, Georgia

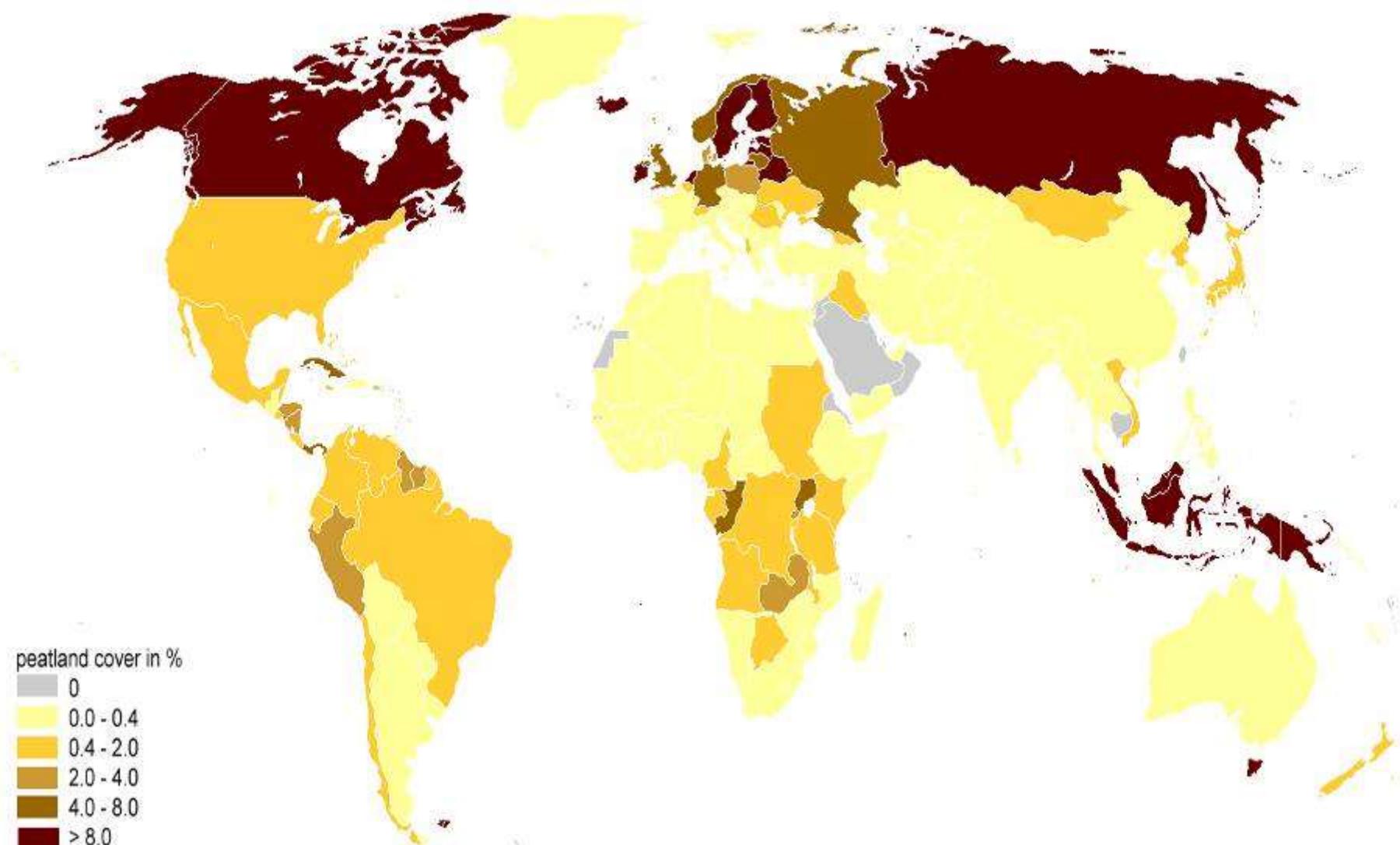


Scotland

Peat accumulates through water saturation:  
Natural peatlands are wetlands!

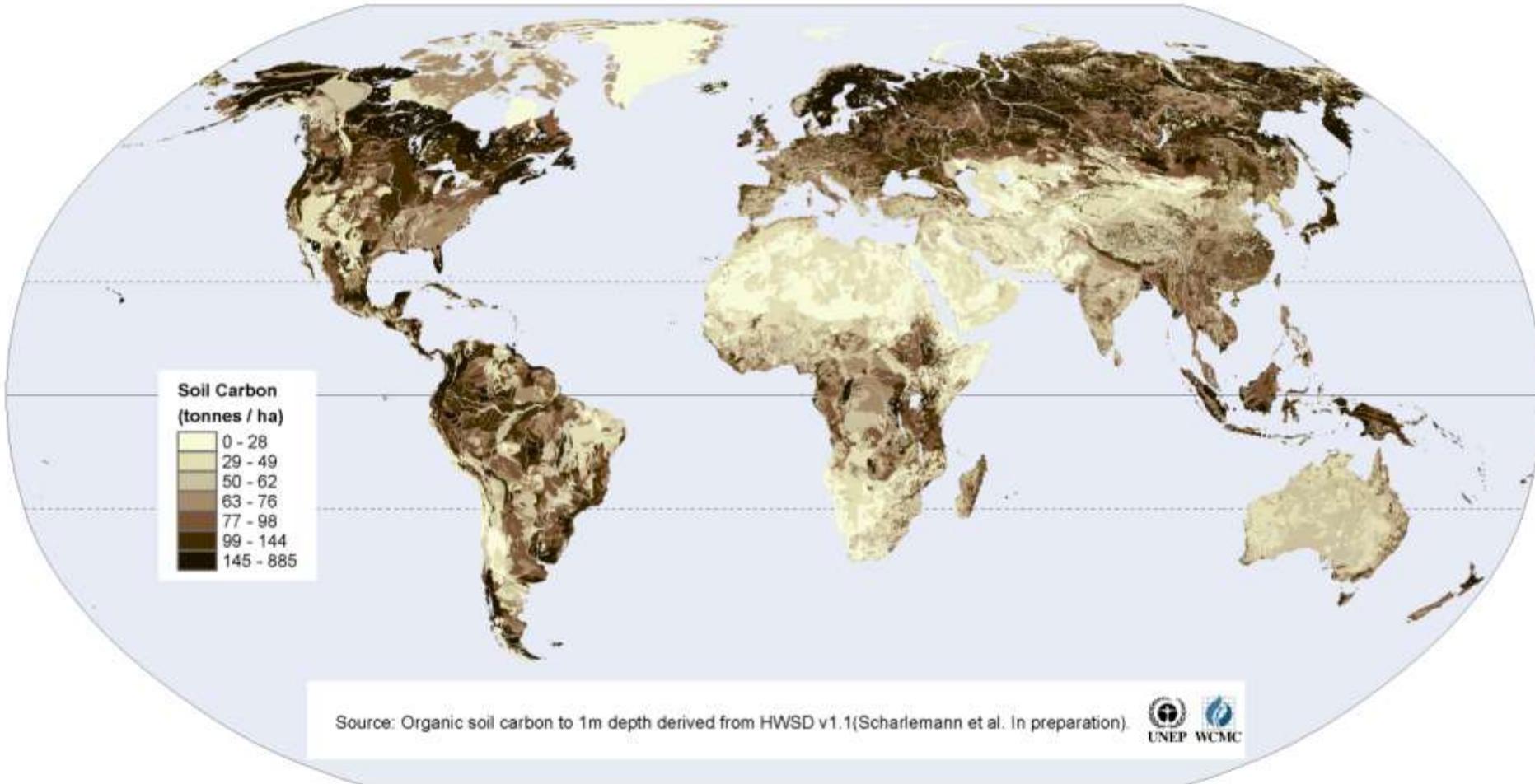
Peat has accumulated during thousands of years and stores concentrated carbon in thick layers





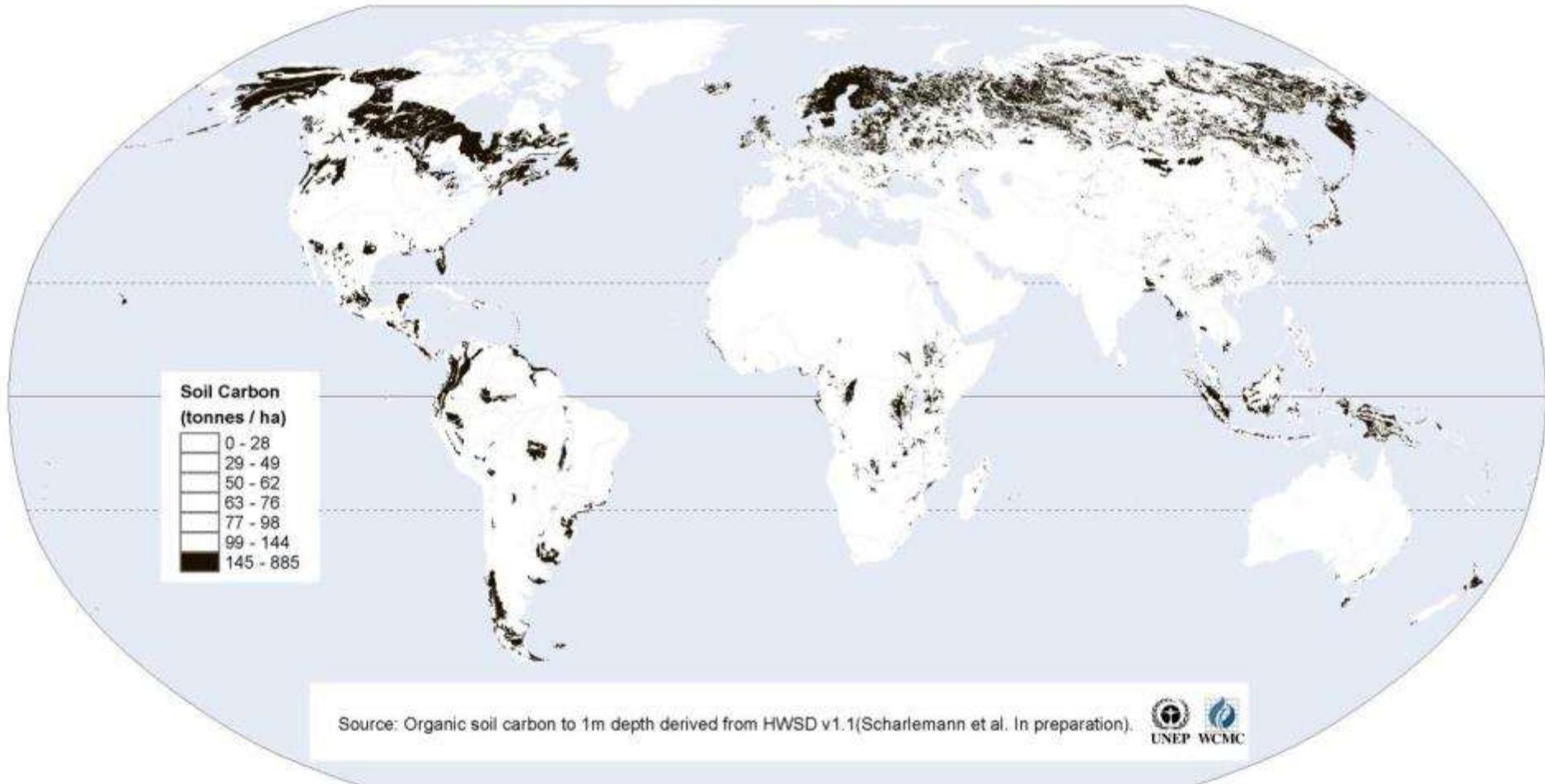
Peatlands are found in almost every country.  
Worldwide: 4 million km<sup>2</sup>

# The neglected carbon pool: SOC

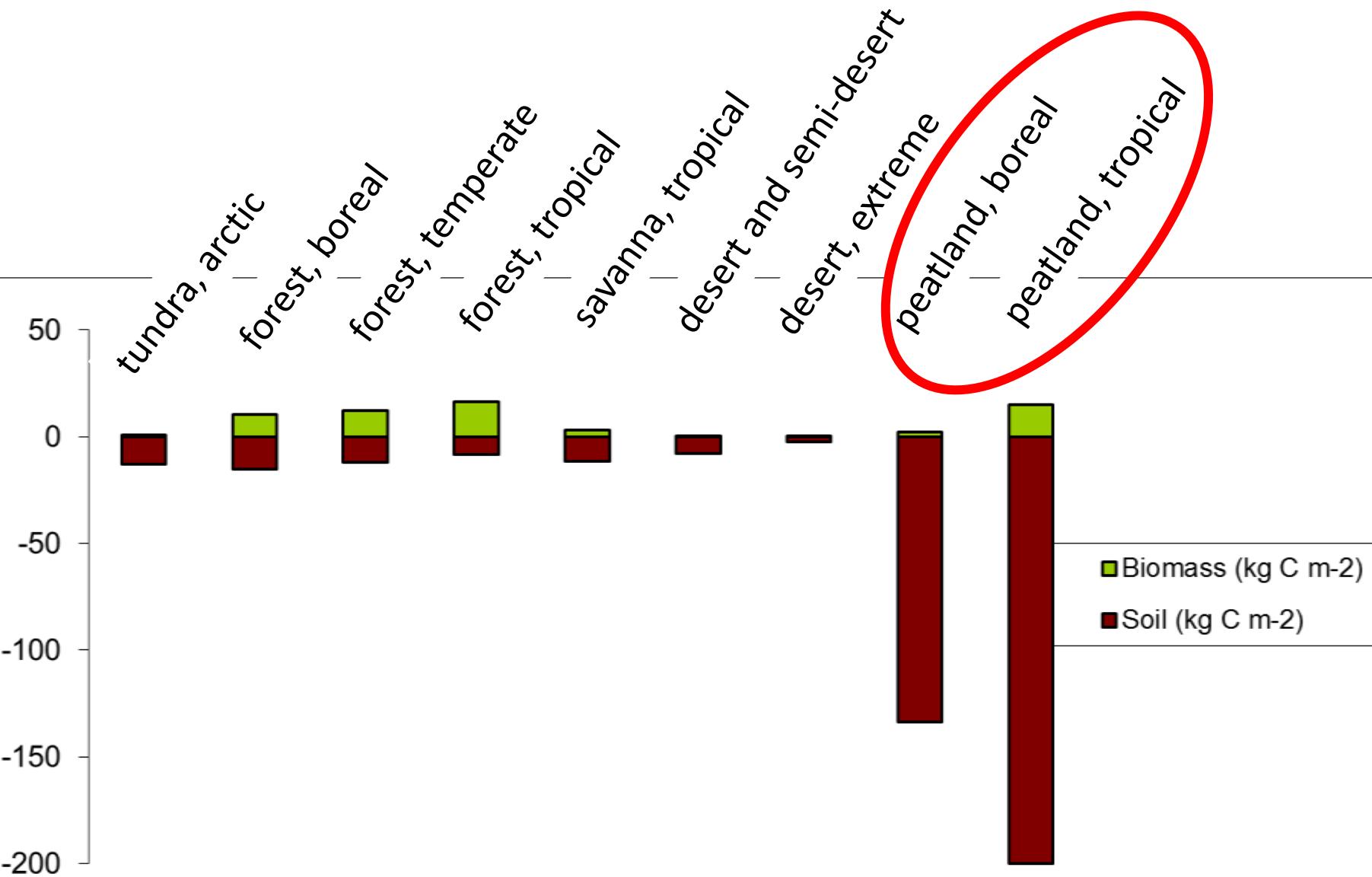


Soil Organic Carbon SOC holds 6x more carbon than the entire global forest biomass

# The SOC hotspot



Peatlands (organic soils) on 3% of the land contain 30% of all Soil Organic Carbon



Compared to other formations, peatlands contain disproportionately much carbon (largely in their soil)

In the boreal zone peatlands contain 7 x more carbon per ha than other ecosystems, in the tropics 10 x.



While covering only 3% of the World's land area, peatlands contain >500 Gt of carbon in their peat. This is 2 times the carbon stock in the total forest biomass of the world.

# Kalimantan



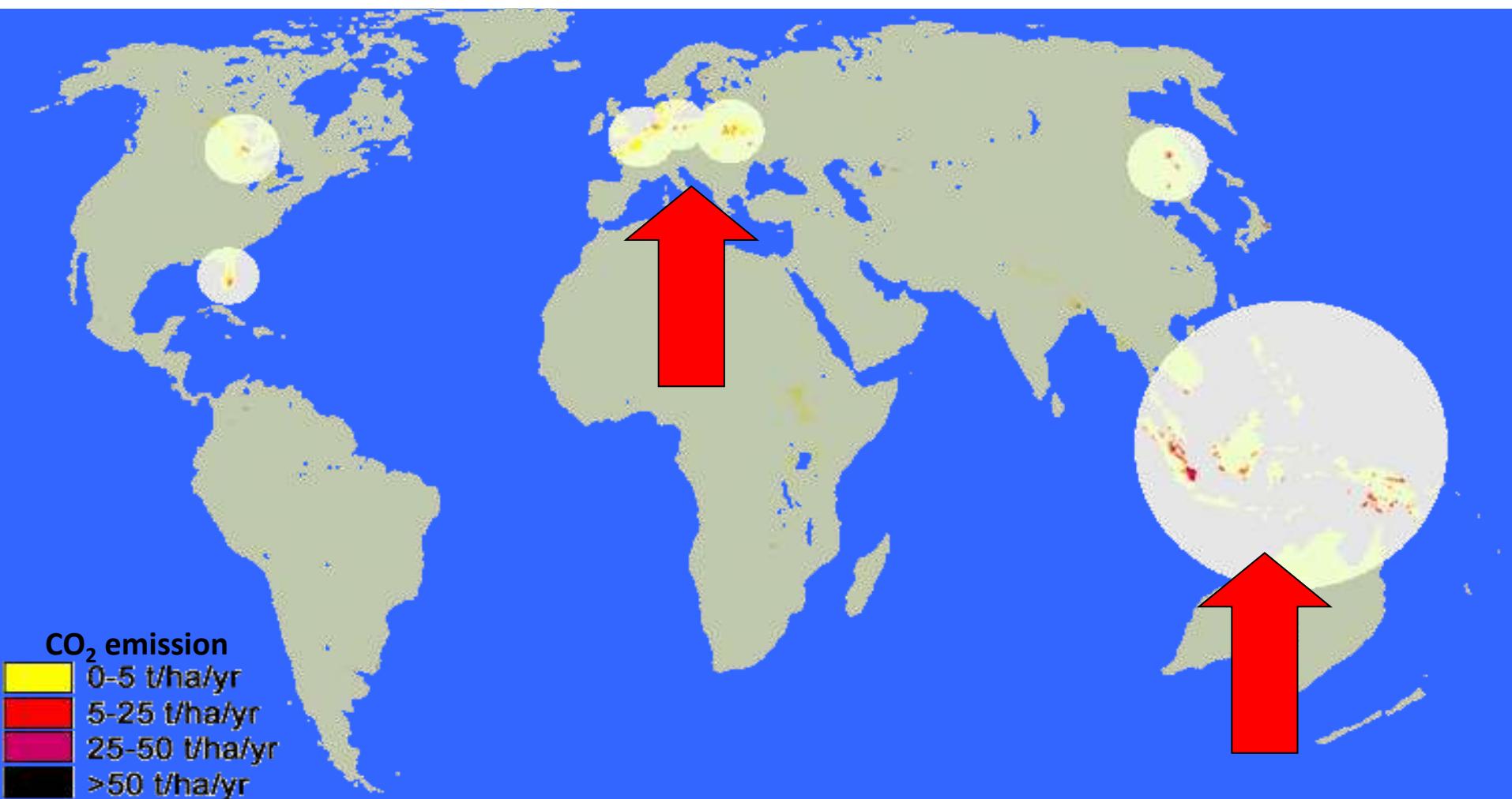
When drained, peatlands become vigorous sources of carbon dioxide (and nitrous oxide)

As a result the peatlands of the World have turned from a carbon-sink to a carbon-source (although 80% is still “pristine”...).

A photograph of a massive forest fire. The foreground is dominated by dark, billowing smoke and ash. In the middle ground, a bright orange and yellow line of flames moves across the landscape, illuminating the surrounding trees. The sky above is a deep, hazy orange and red, suggesting either a sunset or the glow from the fire itself.

Globally, degraded peatlands emit 2 Gigatonnes CO<sub>2</sub> a<sup>-1</sup>

# The land use emission hotspot



Drained peatlands on 0.3% of the land  
emit 6% of all anthropogenic CO<sub>2</sub>



Indonesia leads the list of global top emitters...



The EU is a good second...: In the EU 80% of the CO<sub>2</sub> emissions from agricultural land use come from peatland!

# Top emitters (Mt a<sup>-1</sup>)

- The top (excl. extraction and fires) includes

|                  |     |                   |    |
|------------------|-----|-------------------|----|
| Indonesia        | 500 | Poland            | 24 |
| Russia Eur. part | 139 | Russia Asian part | 22 |
| China            | 77  | Uganda            | 20 |
| Finland          | 50  | Pap. New Guinea   | 20 |
| Malaysia         | 48  | Iceland           | 18 |
| Mongolia         | 45  | Sweden            | 15 |
| Belarus          | 41  | Brazil            | 12 |
| USA (lower 48)   | 33  | United Kingdom    | 10 |
| Germany          | 32  | Estonia           | 10 |

A photograph of a dense tropical forest. In the foreground, there's a mix of green grass and various tropical plants. The middle ground is filled with the dark silhouettes of many tall trees, their trunks and branches forming a complex pattern against a bright blue sky. Some palm fronds are visible on the left side.

Panama

Globally, emissions from drained peatland have increased with +25% since 1990, especially in the tropics

# Main drivers: drained agriculture...



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...overgrazing...



Sichuan, China

# Lesotho



...with associated peatland degradation...

# ...drained forestry



Germany

Jilin, China



Forests on drained peat loose more peat carbon than the  
trees sequester...

...peat extraction...



Belarus

...for energy generation and horticultural substrates...

# Next to emissions, peatland drainage causes other problems



Ruanda