Rewetting drained peat soils supports climate neutrality of Germany

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GHG emissions from drained peatlands are higher than the carbon sink of forests

Most of Germany's peatland area is currently drained, mostly for agriculture. One of the largest hotspots of greenhouse gas (GHG) emissions from EU's drained peatlands is located in Germany (Fig. 1).

The total drained peatland area is 1.6 Mha and the shares of forest, cropland, grassland and peat extraction are 0.3, 0.3, 1.0 and 0.01 Mha, respectively. The GHG emissions from drained peatlands amounted to 47 Mt CO_{2e} in the LULUCF sector (Fig. 2) and 3.3 Mt CO_{2e} in the effort sharing sector in 2022.

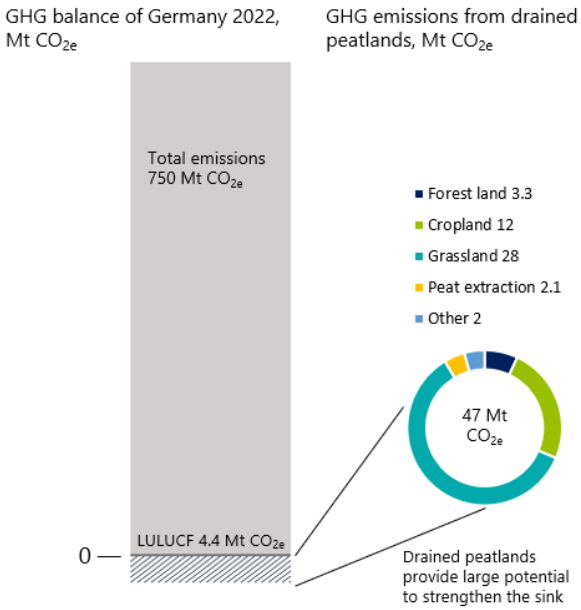

Figure 2. Reported total GHG emissions and emissions of drained peatlands in the land use (LULUCF) sector of Germany in 2022

Rewetting drained peatlands is crucial for turning Germany's LULUCF sector to a sink of carbon

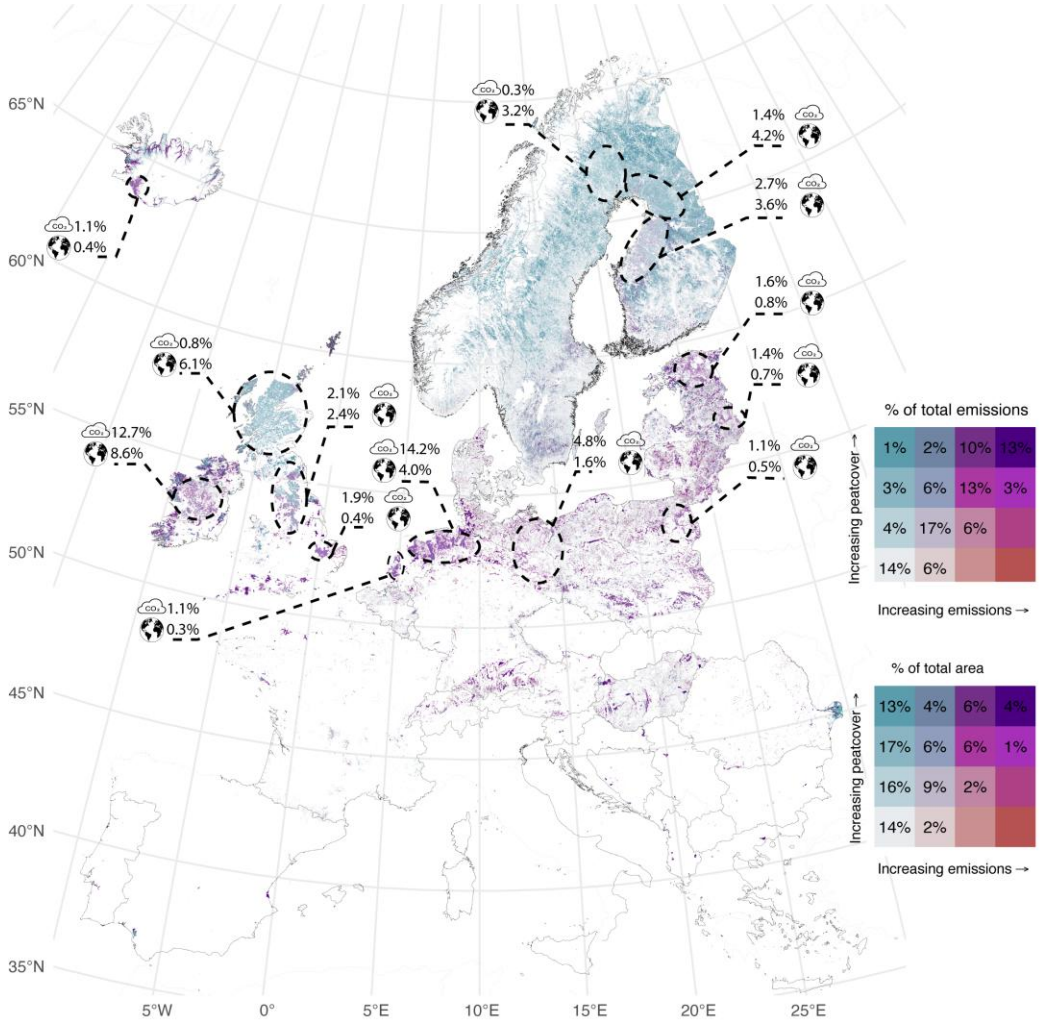

Figure 1. Hotspot map of peatlands showing the contribution of regions to the total greenhouse gas emissions from drained peatlands or area of peatlands in Europe. The darker the colour, the higher fraction of European peatland area or emissions the region represents. See details in van Giersbergen et al. 2025.

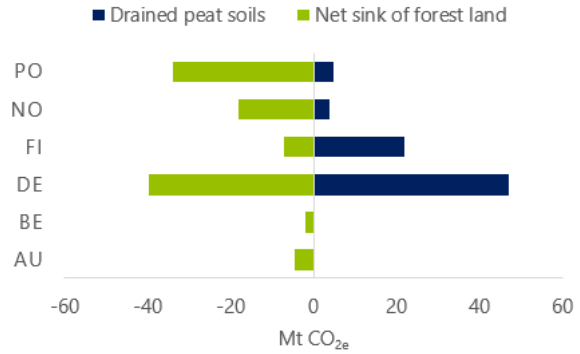

Figure 3. Reported GHGs from drained peat soils compared to the carbon sink of forests in Poland, Norway, Finland, Germany, Belgium and Austria in 2022.

In Germany, emissions from drained peatlands exceed the forest carbon sink, and emission mitigation on drained peatlands is key to strengthening the net sink of the land use sector (Fig. 3).

Rewetting can strengthen the carbon sink remarkably

If all peatlands under agriculture, forestry and peat extraction were rewetted the emission mitigation would amount up to 33 Mt (Fig. 4) of which 30 Mt would add to the net carbon sink and 3.3 Mt reduce agricultural GHG emissions in the effort sharing sector.

Additional benefits from rewetting are:

- Flood, drought and fire prevention
- Less nutrient pollution in watercourses
- New business opportunities from paludiculture
- Recovery of mire-typical biodiversity
- Improved status of protected areas currently surrounded by drained areas
- Improved sustainability of food production and consumption.

What is rewetting?

In rewetting, water flow out from a drained area is restricted. The ground water level rises and enables restoring the wetland functions of the ecosystem. Emissions of carbon dioxide (CO_2) and nitrous oxide (N_2O) decrease and the increase in methane (CH_4) emissions is usually moderate.

The effects of rewetting were calculated assuming an instant change from the current reported average emissions of each land use type to emissions corresponding to the default emissions of rewetted peatlands (IPCC 2014).

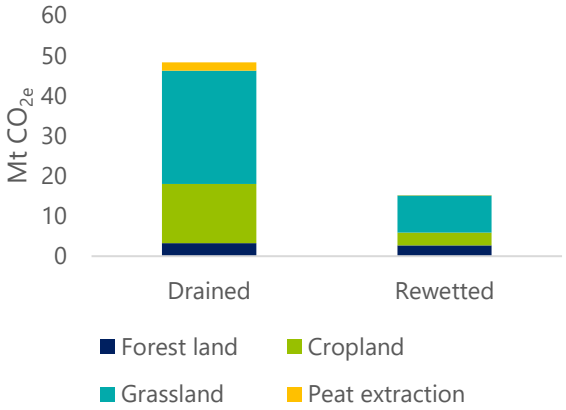

Figure 4. GHG emissions from the main categories of drained peat soils in 2022 and estimated emissions after rewetting the respective area.

To achieve the benefits from rewetting drained peatlands we need to:

- Specify and schedule a separate legal target for peatlands within the LULUCF section of the national Climate Law
- Recognize and promote paludiculture as an agricultural activity
- Incentivise rewetting through business pioneer and start-up support in the field of paludiculture products
- Accelerate rewetting through prioritization as being in the overriding public interest
- Implement the peatland measures in the Federal Action Plan on Nature-based Solution for Climate and Biodiversity (ANK) in an agile and efficient manner. **We particularly welcome the new funding directive "Palu" launched on 17.04.2026, which sets out the framework for the allocation of €1.75 billion Euro in 2026-2029 for rewetting and paludiculture in Germany**

References

Van Giersbergen et al. 2025. https://www.nature.com/articles/s41467-025-65841-6

IPCC 2014. https://www.ipcc.ch/publication/2013-supplement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories-wetlands/

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