

Protecting peatlands is protecting the climate

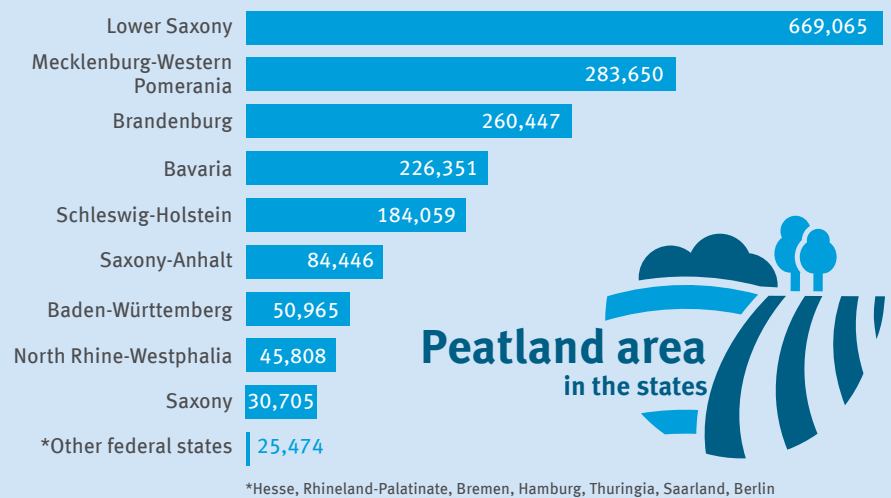
Peatlands are ecosystems that depend on an excess of rain or groundwater. Dead plant components cannot fully decompose because the water isolates them from oxygen – this is how peat is formed. It is a very slow process, however, because peat layers grow an average of one millimetre per year in our latitudes. It takes around 100 years to grow a peat layer of 10 centimetres. The carbon which plants absorb during their growth period out of the atmosphere's carbon dioxide (CO₂) as well as the nutrients are caught in the peat after the plants die. Peatlands have thus developed into immense carbon reservoirs over the millennia.



Peatlands are carbon sinks

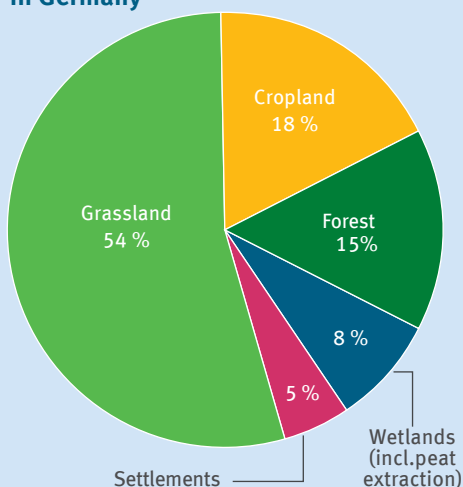
German peatlands store just as much carbon as do forests, although peatlands account for only about 5 percent of the land area, forests for about 30 percent. Peatlands are unique ecosystems and habitats for animals and plants. Healthy peatlands can help balance extreme weather such as heavy rains and flooding, since peat soil is able to absorb water. In summer, wet soil of peatlands does not dry out easily and peatlands therefore have a direct positive impact on the micro-climate. Within the peat layers, peatlands store testimony of our natural and cultural history over centuries. It is estimated that there are almost 18,000 square kilometres (1.8 million hectare) of peatlands in Germany, almost the size of Saxony.

Area information of the moor proportions in hectares



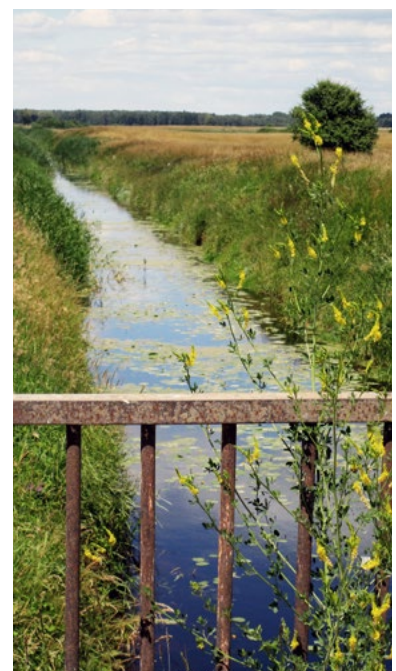
Peatland area
in the states

Use of peatland soils in Germany



Dry peatlands are emission sources

Peat soils are wet and therefore cannot be used for agriculture or other purposes in the same ways as dry land. That is why up until the 1970s peatlands were drained especially to be used in agriculture and forestry. More than 95 percent of German peatlands have been most often drained and are degraded. Once peat soil has been drained, dead plant components in the peat soil get in contact with oxygen and are decomposed. The stored carbon is released as CO₂ into the atmosphere. Thereby, degraded peatlands emit circa 53 million tonnes CO₂-equivalents per year. This corresponds to more than 7 percent of the overall emissions in Germany.



Photos: © Corinna Gather/DEHSt

Graphic 1 front: Data from Tegetmeyer et al.: Aggregated map of the organic soils of Germany, GMC 01/2020;

Graphic 2 front: DEHSt

Graphic 1 back: Data from Tiemeyer et al. (2020): A new methodology for organic soils in national greenhouse gas inventories: Data synthesis, derivation and application, Ecological Indicators Vol. 109 Vectorelements: Designed by Macrovector / Freepik

Graphic 2 back: © DEHSt, Vectorelements: © PureSolution/fotolia.com, Source: Bundesamt für Naturschutz (BfN), ZEIT

Umwelt
Bundesamt

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Emissionshandelsstelle

Emissions reduction

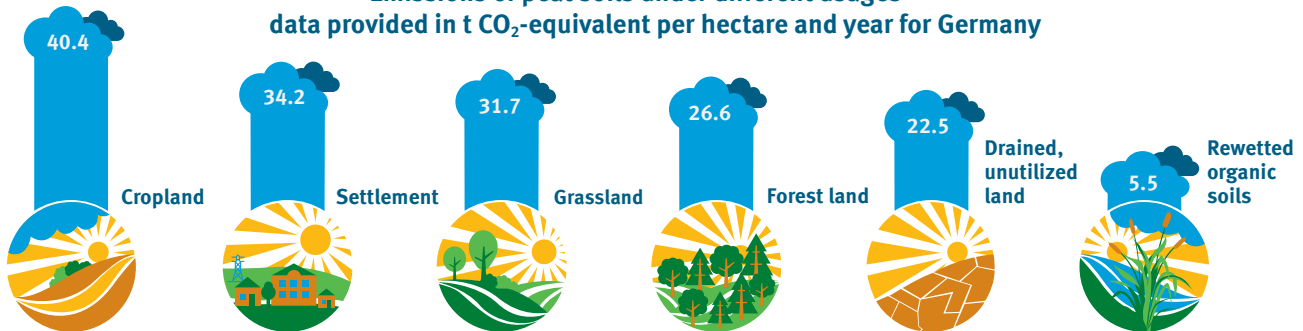
The more peat soil is drained, the more emissions are released. That is why deeply drained peat soils used as cropland emit about 40 tonnes CO₂-equivalents per hectare and year. But also, drained peatlands used as forest lands or without any specific use still emit more than 20 tonnes CO₂-equivalents per hectare and year. To reduce these emissions, peatlands need to be reactivated as carbon sinks.

Peatland rewetting

To reduce emissions, peatlands must be rewetted. Rewetting does not mean to submerge the peatland under water, but the water level should be raised to just below the surface. This corresponds to the water level in natural intact peatlands. This demonstrates: By rewetting, emissions of circa 20 tonnes CO₂-equivalents per hectare and year can be reduced.

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Emissions of peat soils under different usages — data provided in t CO₂-equivalent per hectare and year for Germany



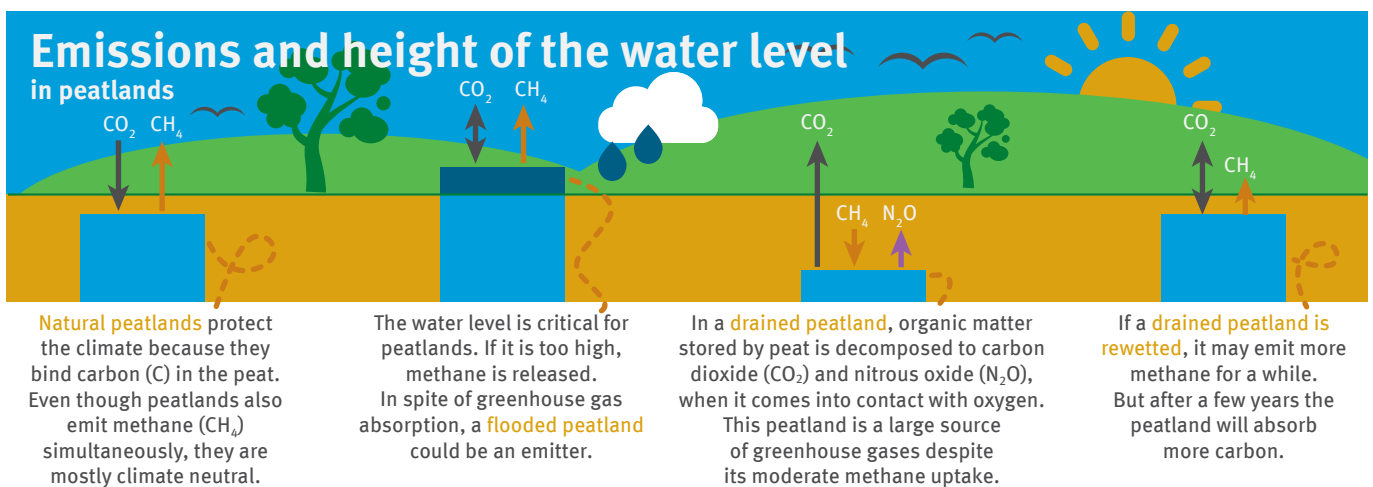
Climate-friendly peatland use

Rewetted peat soils can be restored and maintained as nature reserves. Agricultural use is possible, if it is adjusted to the high ground-water levels and does not destruct but maintain the peat layers (paludiculture). Cultivating reeds for thatching is a traditional example for this practice. Innovative and sustainable uses include recycling and energy recovery from fen biomass, the use of reeds as new building materials or the cultivation of peat moss as a peat substitute in horticultural composts.

BMUV and BMEL promote new management techniques on rewetted soils in a variety of projects.

Targets for peatland protection

To achieve the national and international climate targets, emissions of peat soils must be reduced as much as possible. The federal government has developed a National Peatland Protection Strategy as well as a strategy focussing on the decrease of peat use. The federal and the states' governments have agreed to reduce peatland emissions by 5 million tonnes CO₂-equivalents per year until 2030. The Federal Action Plan on Nature-based Solutions for Climate and Biodiversity addresses protection of intact peatlands and rewetting as a major field of action. Financial incentives as well as other policy instruments and measures need to be designed and implemented ambitiously to have a sustainable positive impact on our climate.



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