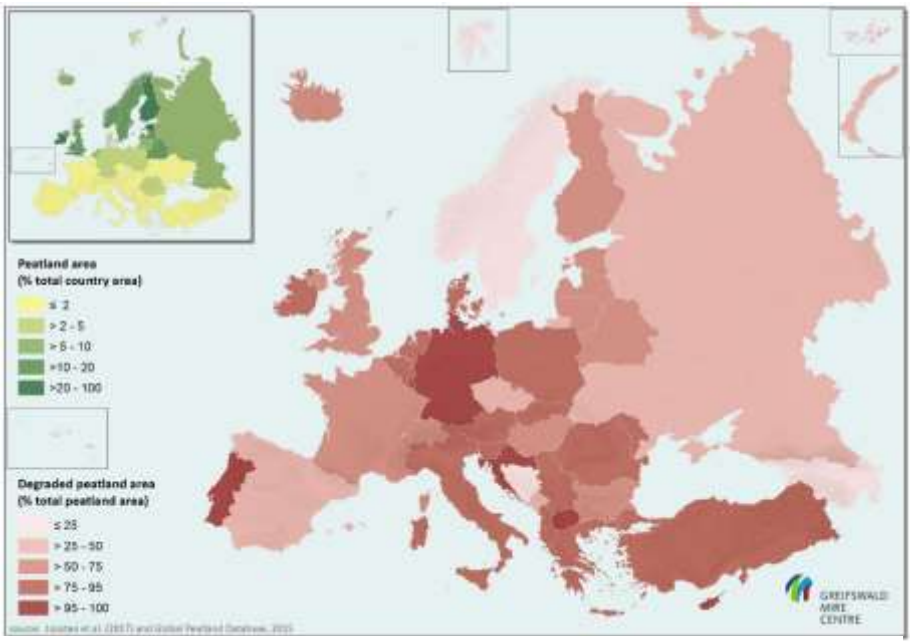
Protecting and Restoring Peatlands – Targets and Recommendations for Peatlands in the EU Biodiversity Strategy

"Significant areas of other carbon-rich ecosystems, such as peatlands, grasslands, wetlands, mangroves and seagrass meadows should also be strictly protected" according to the EC communication on the EU Biodiversity Strategy for 2030[1]. Recognizing that the biodiversity crisis and the climate crisis are intrinsically linked, the communication stresses that *protecting and restoring wetlands, peatlands and coastal ecosystems, or sustainably managing marine areas, forests, grasslands and agricultural soils, will be essential for emission reduction and climate adaptation.* These goals should be underlined with ambitious binding nature restoration targets for these ecosystems.

With this briefing, we, conservationists, scientists and farmers caring for wetlands and peatlands across the EU, aim at underlying that healthy peatlands, either pristine, restored or sustainably managed, can contribute as nature-based solutions to the achievement of the European Green Deal and to the EU Biodiversity Strategy 2030. Peatlands are known as the world's most effective carbon stores and act as water purifiers and reserves in their natural, restored or sustainably managed state. In addition, they are of global importance for biodiversity conservation at genetic, species and ecosystem levels, and provide habitats and refuges for endangered species in a changing climate. Peatland biodiversity includes a range of rare, threatened or declining habitats, plants and animals, highly adapted to very special conditions. A significant number of peatland plant communities are considered to be of European importance[2].

Extension of peatlands in Europe



Map of peatland area in Europe (upper left corner) and percentage of degraded peatlands from total area (main map).

Peatlands occur in almost all EU Member States, with a concentration in north-western, Nordic and eastern European countries, covering an area of circa 350.000 km², of which more than 50% are degraded by the effects of drainage[3] and used for agriculture, forestry and peat extraction.

[1] COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS EU Biodiversity Strategy for 2030 Bringing nature back into our lives COM/2020/380 final

[2] Peatland Biodiversity, 2010 Littlewood, Anderson, Artz, Bragg, Lunt, Marrs, commissioned by the IUCN UK Peatland Programme‟s Commission of Inquiry on Peatlands.

[3] Joosten, H., Tanneberger, F. & Moen, A. (eds.) (2017) Mires and Peatlands of Europe: Status, Distribution and Conservation. Schweizerbart Science Publishers, Stuttgart, 730 pp

Peatlands restoration targets

When considering restoration targets for peatlands to be included in the new law, the EC should focus on two main categories – a) **natural mires** representing peatland habitat types that are listed on the Annexes of the Habitats Directive and b) **drained peatlands** currently or in the past under use (agriculture, forestry, peat extraction).

a) **Natural mires** have to be fully protected with a high conservation status (incl. in 10% goal of EU Biodiversity Strategy for strict protection) and **semi-natural**, easily restorable peatlands with high biodiversity values need to be fully restored and given back to nature until 2030 (incl. in 30% goal for protection). Mires can be categorised as freshwater ecosystems within the biodiversity strategies, and general targets for peatlands outside the CAP are included in this document.
b) For **agriculturally used, mostly drained peatlands**, we advise to look at how the Common Agricultural Policy (CAP) can be improved to make sure of the protection and restoration of peatlands used for agriculture. Member States should be encouraged to include peat soils high on the agenda in their national CAP Strategic Plans and programming of EcoSchemes and agri-environmental and climate schemes (see Policy coherence).

For both categories, restoration of degraded peatlands is possible and the results for biodiversity and climate action generally are profound. **Peatland restoration** involves measures designed to enable recovery of ecosystems that have been impoverished, damaged or destroyed due to human activity, and also reverting them to a state similar to or as near to their natural state as possible, as well as initiate re-establishing of some of their ecological processes and functions, especially in regard to hydrology. One of the **primary objectives of restoration** is to improve the quality of species' habitats, thus contributing to slowing or halting the rate of biodiversity loss, and at the same time providing a continuous platform for future evolution. Improving of the quality of habitats simultaneously enhances the ecosystem capacity to function as carbon storage and carbon sink.

Good understanding of the ecosystem functioning, particularly eco-hydrological processes, as well as knowledge-based restoration designs are crucial for effective actions. Equally important is improving and maintaining the knowledge base for tracking the state and extent of degraded and restored peatlands and for long-term monitoring of restoration impact, which will allow a reliable assessments of realisation of the goals of both climate and biodiversity policy.

Priorities for restoration have to be assets, e.g. for species of special importance. As an examples, priority restoration areas as stepping stones for the Aquatic Warbler (*Acrocephalus paludicola*) for Poland, Lithuania and Belarus have been detected by a GIS assessment in the frame of EU Life projects.

Co-benefits of restoration:

- GHG emissions of peat soils can be significantly reduced by raising water levels near to the surface (e.g. by drain blocking, stop pumping in polders), which reduces peat decomposition, stops soil subsidence protects the remaining peat carbon store.
- Rewetting prevents soil subsidence and eventual flooding and saltwater intrusion in the coastal areas as well as lowers risk of peat fires, soil erosion and desertification.
- Some wet peatlands can be sustained in a productive state (paludiculture), resulting in reducing pressure on remaining wetlands, and in long run contribute to improving the wildlife habitat.
- Rewetted peatlands store water and help adaptation to a changing climate.

A two-fold approach is needed to define peatlands targets

Given the specificity of peatland ecosystems, we believe that for the definition of restoration targets a **two-fold approach is needed.**

1) Qualitative. We would suggest to embed in the law a clear commitment from Member States to be achieved by 2030:

- ✓ Natural mires have to be fully protected with a high conservation status (incl. in 10% goal for strict protection)
- ✓ Easily restorable and semi-natural peatlands[4] need to be fully restored to high biodiversity values and given back to nature or managed in a habitat-supporting way (incl. in 30% goal for protection)
- ✓ Continuous and severe damage to peatlands should end by fostering a fundamental change in peat management patterns, prohibiting, or at least minimizing, the drainage process.

2) Quantitative. To reach the climate action ambitions of the Paris Agreement, a transformation pathway for peatlands should lead to net zero CO2 emissions by 2050. It will foster biodiversity as well and therefore, the following legally binding targets for peatlands should be included in EU 2030 Biodiversity Package (**2030 targets highlighted**):

- ✓ Forestry on drained peatlands: **by 2030 transition towards sustainable management practices incl. habitat management on 50% of currently managed area**, by 2040 an additional 25%, by 2050 the remaining 25%. Priority should be given to nutrient rich organic soils (mostly fens).
- ✓ Cropland on drained peat: **by 2030 stop all land-use of peatland grassland and forests to croplands, and reduce cropland use with annual species on drained peat soils by 50%;** and by 2040 remaining 50%.
- ✓ Grasslands on drained peat: **by 2030 raise water levels to ≤ 30 cm below the surface and on at least 15% to the surface.** By 2040 raise water level to surface in 60%, and by 2050 on 100%
- ✓ **Peat extraction**: **By 2030 no new peat extraction fields opened, all abandoned mining sites restored**. By 2040 at least 50% reduction of peat extraction sties and sufficient peat-free substrates for horticulture available. Latest by 2050 ongoing extraction must be fully ceased, recultivation implemented aiming to restore previous peatland ecosystems.
- ✓ New land use on peatlands: by 2025 no new development, including roads and airports
- ✓ Road construction in peatlands: by 2040 restore hydrology on all peatlands crossed by roads; either by avoiding to build new roads, remove redundant ones or create hydraulic connectivity of crossed peat body.

For each of the percentage, we could provide the EC with maps and data per country from the Global Peatland Database of the International Mire Conservation Group (IMCG) and the Greifswald Mire Centre[5] and from LUKE databases (forest inventory).

Policy coherence

Healthy peatlands are not consistent with drainage-based agricultural land use. If productive land use needs to continue on peatlands, a paradigm shift is required involving new concepts, crops and techniques, such as climate-adapted and sustainable wet-agricultural production techniques, like paludiculture, as well as adjustments of the current agricultural policy framework. Also forestry

[4] Marginally used peatlands (esp. semi-natural grasslands) on which hydrology can be restored easily technically

[5] https://greifswaldmoor.de/global-peatland-database-en.html

practices on peatlands need to take the soil properties and their effect on habitats and GHG emissions more into account.

Appropriate climate and biodiversity policy measures, especially in the frame of the Common Agricultural Policy (CAP) and the EU Forestry Strategy, must enable land use (sectors Agriculture and LULUCF) to minimize peatland emissions. Therefore, there needs to be a coherence between policies, which aim to protect and restore biodiversity, reduce emissions with climate policies (esp. LULUCF regulation) and agricultural policies. Up until now, drainage of peatlands for agriculture is subsidised by CAP payments and causing huge environmental losses and damage, i.a. emitting up to 30 tonnes of CO_2 per hectare per year. This needs to change in a way that landowners and farmers are benefitting from peatland restoration and paludiculture with decent payments and incentives from different sources (CAP, Carbon Farming, Biodiversity premium).

Main principles to be included in the legislative proposal

- Member states, above all peatland-rich ones, need to take clear responsibility and commitment to restore, safeguard peatlands.
- Member states, landowners and -users in the EU should be encouraged and incentivised to maintain and re-establish high water levels in peatlands to maximise carbon storage, minimise greenhouse gas emissions, support biodiversity.
- No landowner in the EU should be economically or socially disadvantaged by maintaining or developing wet peatlands or rewetting peatlands, supporting paludiculture products as an option for market.
- Deliberate degradation of the long-term carbon storage capacity of peatlands should always be penalised and should never be subsidised by any EU payments.
- Guarantees for permanence of restored peatlands need to be established and a scientific monitoring system should be put in place to ensure this.
- Ensure an investment plan in the frame of the EU Green Deal for a just transition that should establish compensation and economic diversification funding to mitigate the socio-economic impacts of land use changes on existing livelihoods and businesses in peatland-rich Member States or regions

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Glossar: Peatland terminology[6]

Peatlands are commonly classified on the basis of its water source, which may change in time during succession, and also governs water and nutrient chemistry. Common terms used to describe peatlands[3]:

Peat: Sedentarily accumulated material from dead organic material (mostly remains of plants under water saturated conditions when the biomass accumulation is greater than the decay).
Peatland: An area with a naturally accumulated peat layer at the surface.
Mire: A peatland with a vegetation which actively forms peat.
Bog: A peatland predominantly fed by rain water.
Fen: A peatland which receives water that has been in contact with mineral bedrock or soil.
Histosol: A peatland whose soil contains at least 12–18% organic C and whose thickness is at least 40 cm.
Organic soil contains at least 20 % organic carbon (35 % organic matter), definition by Intergovernmental Panel for Climate Change used in reporting greenhouse gas inventory (IPCC 2006, 2013)[7]

[6] Joosten, H., Tanneberger, F. & Moen, A. (eds.) (2017) Mires and Peatlands of Europe: Status, Distribution and Conservation. Schweizerbart Science Publishers, Stuttgart, 730 pp
[7] IPCC 2006, 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Hayama: IPCC and IGES. http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.htm
IPCC 2014, 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands, Hiraishi, T., Krug, T., Tanabe, K., Srivastava, N., Baasansuren, J., Fukuda, M. and Troxler, T.G. (eds). Published: IPCC, Switzerland.