

## PEATLANDS AND CLIMATE CHANGE

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- **Peatlands are a type of wetlands which are among the most valuable ecosystems on Earth:** they are critical for preserving global biodiversity, provide safe drinking water, minimise flood risk and help address climate change.
- **Peatlands are the largest natural terrestrial carbon store;** the area covered by near natural peatland worldwide (>3 million km<sup>2</sup>) sequesters 0.37 gigatonnes of carbon dioxide (CO<sub>2</sub>) a year – storing more carbon than all other vegetation types in the world combined.
- **Damaged peatlands are a major source of greenhouse gas emissions,** annually releasing almost 6% of global anthropogenic CO<sub>2</sub> emissions. Peatland restoration can therefore bring significant emissions reductions.
- **Countries are encouraged to include peatland restoration in their commitments to global international agreements,** including the Paris Agreement on climate change.

### What is the issue?

Peatlands are a type of wetlands that occur in almost every country on Earth, currently covering 3% of the global land surface. The term 'peatland' refers to the peat soil and the wetland habitat growing on its surface.

In these areas, year-round waterlogged conditions slow the process of plant decomposition to such an extent that dead plants accumulate to form peat. Over millennia this material builds up and becomes several metres thick.

Peatland landscapes are varied – from blanket bog landscapes with open, treeless vegetation in the Flow Country of Scotland – a tentative World Heritage site – to swamp forests in Southeast Asia. New areas are still being discovered such as the world's largest tropical peatland discovered beneath the forests of the Congo Basin in 2017.



Blanket bog of the Flow Country, Forsinard, Scotland © RSPB

Large amounts of carbon, fixed from the atmosphere into plant tissues through photosynthesis, are locked away in peat soils, representing a valuable global carbon store.

A lack of awareness of the benefits of peatlands means that they have been severely overexploited and damaged as a result of actions including drainage, agricultural conversion, burning and mining for fuel, among others. About 15% of the world's peatlands – covering less than 0.4% of the global land surface – have been drained. This has released huge amounts of greenhouse gases, such as carbon dioxide (CO<sub>2</sub>), from the carbon stored within peat soils.

### Why is this important?

Peatlands are highly significant to global efforts to combat climate change, as well as wider sustainable development goals. The protection and restoration of peatlands is vital in the transition towards a low-carbon and circular economy.

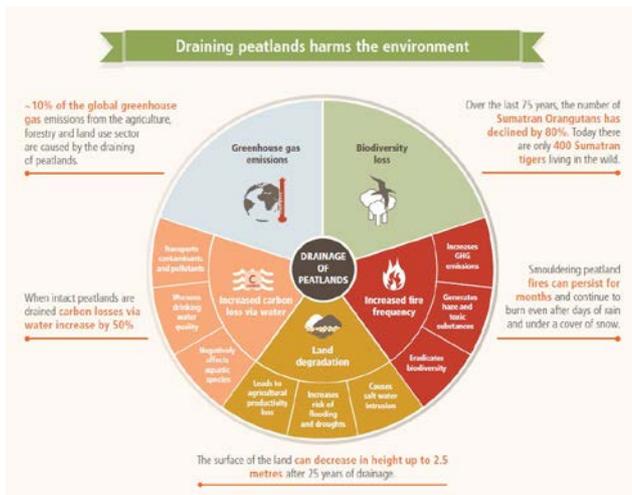
Damaged peatlands contribute about 10% of greenhouse gas emissions from the land use sector. CO<sub>2</sub> emissions from drained peatlands are estimated at 1.3 gigatonnes of CO<sub>2</sub> annually. This is equivalent to 5.6% of global anthropogenic CO<sub>2</sub> emissions. Fires in Indonesian peat swamp forests in 2015, for example, emitted nearly 16 million tonnes of CO<sub>2</sub> a day. This is more than the daily emissions from the entire US economy.

At the same time, peatlands are the largest natural terrestrial carbon store. Worldwide, the remaining area of near natural peatland (>3 million km<sup>2</sup>) contains more than 550 gigatonnes of carbon, representing 42% of all soil carbon and exceeds the carbon stored in all other vegetation types, including the world's forests. This area sequesters 0.37 gigatonnes of CO<sub>2</sub> a year.

In their natural, wet state peatlands provide vital ecosystem services. By regulating water flows, they help minimise the risk of flooding and drought and

prevent seawater intrusion. In many parts of the world, peatlands supply food, fibre and other local products that sustain local economies. They also preserve important ecological and archaeological information such as pollen records and human artefacts.

Draining peatlands reduces the quality of drinking water due to pollution from dissolved compounds. Damage to peatlands also results in biodiversity loss. For example, the decline of the Bornean Orangutan population by 60% within a sixty-year period is largely attributed to the loss of its peat swamp habitat. The species is now listed as Critically Endangered on The IUCN Red List of Threatened Species™.



Protecting intact peatland habitats is important to secure the carbon stored within the peat, support unique biodiversity and maintain water quality © UN FAO

## What can be done?

Urgent action worldwide is required to protect, sustainably manage and restore peatlands. This involves protecting them from degrading activities such as agricultural conversion and drainage, and restoring the waterlogged conditions required for peat formation to prevent the release of carbon stored in peat soil.

Global efforts can build on the work of those countries which have taken steps to reverse the decline of peatlands. The United Kingdom, for example, is establishing a strategic peatland action plan to support the UK’s climate mitigation plans and international biodiversity targets. In Southeast Asia, the ASEAN Peatland Forests Project (APFP) is supporting the implementation of a multi-stakeholder Peatland Management Strategy to restore peatlands and reduce the rate of degradation and the risk of fire and haze. The European Union LIFE funding has assisted over 260 peatland restoration projects, providing practical experience on the feasibility and techniques of peatland restoration.

Peatland restoration projects have proven to be cost-effective compared to other available carbon reducing technologies. They also have the added bonus of re-establishing the multiple benefits arising from peat-forming ecosystems.

The UN Food and Agriculture Organization (FAO) has presented 10 strategic actions that can ensure peatlands contribute their full potential to global agreements such as the Paris Agreement on climate change and Sustainable Development Goals. These include:

- assessing the distribution and state of peatlands
- measuring and reporting emissions from peatlands
- protecting and restoring peatlands with targeted financial support
- stimulating market-based mechanisms to support peatlands
- engaging and supporting local communities
- sharing experience and expertise on peatland conservation, restoration and improved management.

A 2016 IUCN Resolution ‘Securing the future for global peatlands’ supports the FAO’s strategic actions and encourages their adoption within country-focused peatland programmes. The Resolution further recommends:

- peatlands to be included alongside forests in all relevant intergovernmental agreements relating to climate change, geodiversity and biodiversity;
- a moratorium on peat exploitation until legislation is strengthened to ensure peatlands are protected or managed through wise use principles.

Emissions from damaged peatlands and carbon savings from peatland restoration are eligible for national accounting under the UN Framework Convention on Climate Change. There is therefore an opportunity for more countries to look at including peatland restoration and re-wetting in their national climate action plans.

### Where can I get more information?

IUCN Commission on Ecosystem Management  
Peatland Ecosystems Group: [iucn.org/cem\\_peatlands](http://iucn.org/cem_peatlands)

IUCN UK National Committee Peatland Programme  
[iucn-uk-peatlandprogramme.org](http://iucn-uk-peatlandprogramme.org)

Global Peatlands Initiative  
[globalpeatlands.org](http://globalpeatlands.org)

Cris, R., Buckmaster, S., Bain, C. and Reed, M. (eds.) (2014). *Global Peatland Restoration Demonstrating SUCCESS*. Edinburgh: IUCN UK National Committee Peatland Programme.