Scientists Call for Action

Five Reasons We Depend on Peatlands

Together, the 27th Conference of the Parties (COP27) to the UN Framework Convention on Climate Change and the 15th meeting of the Conference of the Parties (COP15) to the Convention on Biological Diversity (CBD) mark critical moments in this 'decision-decade', with ambitious action urgently needed in all sectors to reduce global greenhouse gas (GHG) emissions and safeguard nature.

Peatlands – watery landscapes that are also called bogs, fens, swamps, muskeg, and mires – help cool the Earth's climate by slowly removing carbon dioxide from the atmosphere and storing it for thousands of years. Peat soils, defined by their tightly compressed carbon-rich layers of partially decomposed plant material, store more than 30% of the world's soil carbon on just 3% of the land surface.

Many peatlands in locations around the world – from the Scottish Highlands to the island of Borneo - have been degraded or lost to agriculture, forestry, fires, resource extraction, and infrastructure development, causing irreversible loss of multiple species and the release of billions of tonnes of carbon dioxide (CO_2) and other GHG emissions (e.g., methane) to the atmosphere.

Some peatlands sit atop oil, gas, and mineral deposits[1], making them especially vulnerable to destruction, including in some of the largest high-integrity (undisturbed) peatlands in the world – in the Congo and in Canada. For example, in Canada, mining for critical minerals threatens the world's second largest peatland complex – the vast boreal and subarctic peatlands of the Hudson Bay Lowland[2]. And the Democratic Republic of Congo recently announced plans to open access to the country's extensive tropical peat swamps[3] to oil companies.

Worldwide, in remote corners of the globe, there are other large areas of high-integrity peatlands, including parts of the largest peatland complex of the world – the West Siberian Lowland in Russia, the temperate subantarctic and montane peatlands of Patagonia in Chile and Argentina, and tropical peat swamps in the Amazon Basin[4] and across southeast Asia. But many of these peatlands also face significant and immediate threats, with their destruction leading to major biodiversity loss while also tipping our climate towards catastrophic warming.

The following provides the top five reasons why protecting peatlands must be included with urgency as high priorities in both the climate and biodiversity agendas.

1. **Peatlands are enormous carbon stores**. Globally, peatlands store around 600 billion tonnes of carbon[5], roughly equivalent to 70% of the carbon contained in all the known remaining coal, oil, and gas reserves. We need to reduce global emissions by 7.6% (nearly 4 billion tonnes of CO_2) each year to keep global warming below 1.5 degrees Celsius[6]; that means keeping most of those fossil fuels in the ground. The same goes for the carbon stored in peatlands – we can't afford to add more greenhouse gases to the atmosphere by destroying the world's peatlands. There is no room in our global carbon budget - the math is that simple.

2. **Greenhouse gas emissions from degraded peatlands are globally significant**. Around 20-25% of global peatlands have been drained, burned, or degraded[7]. Although drained peatlands cover less than 0.5% of the world's land surface, they emit approximately 1.5 billion tonnes of CO_2 to the atmosphere each year[8], which is roughly 4% of all global greenhouse gas emissions. Although the carbon already emitted is irrecoverable in our lifetimes[2], most of the ongoing emissions could be prevented by adequate investment in peatland management and restoration[9]. Here, there has been notable progress, particularly in northern Europe and Indonesia. Yet, these gains could be lost from the proposed resource extraction activities in the peatlands of the Hudson Bay Lowland in Canada[2] and the Congo Basin, which combined would emit an estimated 7 billion tonnes of CO_2 to the atmosphere – equivalent to burning over 16 billion barrels of oil. Peatland degradation also increases the risk of wildfire and prolonged smouldering in deep peat over winter which can increase permafrost thaw[10], leading to further large losses of carbon[11].

3. **High-integrity peatlands remove carbon from the atmosphere.** Globally, peatlands remove around 370 million tonnes of CO_2 each year from the atmosphere[12], an amount equivalent to the annual emissions of nearly 80 million petrol-powered passenger vehicles. Peatlands lock this carbon away in waterlogged soils that may also be permanently or seasonally frozen in northern climates. This ongoing carbon uptake helps to regulate the climate, keeping the Earth a little cooler than it would otherwise be[13]. Degraded peatlands lose this function[14], along with the loss of their stored carbon.

4. **Peatlands support myriad species of plants, animals, and insects.** Peatlands also play an important role in biodiversity conservation, providing diverse habitat for many species, including those at risk of extinction. For example, the Hudson Bay Lowland in Canada is home to a great variety of life, including many national and globally rare plants and lichens, and caribou, wolverine, polar bear, and lake sturgeon. This large boreal peatland complex is also an important stop for migrating birds such as the Hudsonian godwit and red knot[15]. In Indonesia, tropical peat swamps support the critically endangered orangutan[16] and Sumatran tiger. The Congo peatlands are home to the world's highest densities of lowland gorillas[17]. And in the Peruvian Amazon, peatlands are home to many rare birds and the tiny tapir frog[18].

5. **Peatlands are important to people.** Many peatlands lie within the homelands of Indigenous Peoples and are integral to their cultures and livelihoods[19]. Peatlands are also essential for helping people cope with climate change impacts, by buffering communities and infrastructure against droughts and floods, maintaining water supply to adjacent forests and other ecosystems[20], reducing wildfire risk[21], and serving as potential climate change refugia for plants and animals[22].

Our call for action is simple: Protect the world's remaining high-integrity peatlands, and restore those that have been degraded. Act as if our future depends on it – because it does.

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