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Global Peatlands Initiative

Global Peatlands Assessment: The State of the World's Peatlands

EVIDENCE FOR ACTION TOWARD THE CONSERVATION, RESTORATION, AND SUSTAINABLE MANAGEMENT OF PEATLANDS

SUMMARY FOR POLICY MAKERS

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Contents

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Policy Summary

Peatlands are ecosystems with a unique type of peat soil formed from plant material that has only partially decomposed due to water saturated soil conditions (and in polar areas also due to the cold). While they are relatively rare, covering around 3-4% of the planet's land surface, they contain up to one-third of the world's soil carbon. This is twice the amount of carbon as found in the entirety of Earth's forest biomass. Keeping this carbon locked away is absolutely critical to achieving global climate goals.

The Global Peatlands Assessment is the most comprehensive assessment of peatlands to date. It has been created by a group of 226 contributors from all regions of the world to provide a better understanding of what peatlands are, where they are found, what condition they are in, and how actions can be taken to protect, restore and sustainably manage them. It also provides a valuable baseline for improvement against future assessments and paves the way for the development of a comprehensive global peatland inventory. It was created using expert-based reviews with new data on the extent and state of the world's peatlands and clearly reveals regions where information on peatlands is particularly scarce so follow-up work can be conducted to fill these data gaps.

A major focus of this assessment is on how better peatland management can be deployed as a nature-based solution to halt biodiversity loss, support climate change adaptation, support climate change resilience, mitigate further climate change and support the wellbeing of communities living in these landscapes. It has been written to help decision-makers advance sustainable peatland management and encourage urgent action for their conservation and restoration.

Although the carbon value itself of peatlands is immense, with total carbon stored in them globally estimated to be in the range of 450,000 to 650,000 megatons [Mt], this assessment considers the wider extent and condition of peatlands as it is their overall health that governs their effectiveness.

Beyond the vast quantities of carbon that they slowly sequester and store, peatlands provide a range of valuable additional benefits and services to humanity. They play a critical role in the water cycle by storing and filtering water, slowing peak flows and reducing the impact of floods. They are home to unique plants and animals that millions of people depend upon. These special wetlands also often contain important archaeological relics and include information on past environmental conditions within their peat layers that are valuable for predicting what climate will be like in the future.

Peatlands are more extensive than previously estimated. This assessment reveals that they cover about 500 million hectares globally and are found across all continents. Despite their importance in the landscape, they are often misunderstood and undervalued. Peatlands are being degraded in every part of the world. They are drained for agriculture and forestry, eroded by overgrazing of livestock, mined for fuel and horticulture, and polluted by human activity. Infrastructure development disturbs their hydrology and many are deliberately burned. These activities drive peatlands to release carbon and abruptly terminate the other benefits that they grant to people and wildlife. Degraded peatlands currently emit about 2,000 Mt of carbon dioxide equivalent [CO_2e] of greenhouse gases by microbial oxidation, which is 4 % of all anthropogenic emissions, fires excluded. Fires on drained peatlands are particularly serious as they can lead to very substantial emissions of greenhouse gases.

This situation is being made worse by climate change as higher temperatures and unpredictable rainfall patterns render peatlands drier and more vulnerable to fires that release more greenhouse gases, warm the climate further and create a dangerous feedback loop.

The situation is critical but not hopeless. It is imperative that the 88% of the world's peatlands that have not been drained and not been heavily degraded be urgently protected to prevent their immense carbon stocks from being mobilized. This combined with early action to halt further degradation through restoring drained peatlands can achieve rapid carbon emission avoidance and reductions. If implemented with urgency, the protection, restoration and sustainable management of peatlands offer a huge win for people, climate and nature. Conservation and restoration of tropical peatlands alone can reduce global greenhouse gas emissions by 800 Mt CO_2e per year (close to 2% of current annual global emissions) at an estimated investment of $40 billion US Dollars. Such action would simultaneously support biodiversity, improve water quality, reduce flood risk, reduce air pollution from peatland fires and enhance the protection of important cultural heritage. The benefits are enormous.

Efforts to conserve and restore peatlands have met with limited success. For example, while 88% of all countries are signatories to the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Convention on Wetlands), many have not yet developed national peatland policies or plans. Typical challenges include incomplete information on the characteristics, location, extent and condition of peatlands coupled by a lack of awareness, policies and resources. This assessment aims to provide governments, other decision-makers and peatland managers with this vital information.

Protecting, restoring and sustainably managing peatlands goes far beyond meeting commitments made under the Convention on Wetlands. Taking these actions will also contribute towards targets adopted under a number of other multilateral environmental agreements. The critical role of peatlands in addressing climate change and biodiversity loss has been recognized in resolutions from the United Nations Environment Assembly, the International Union for the Conservation of Nature and the Convention on Biological Diversity. Nature-based solutions from the sustainable management of peatlands can be included in Nationally Determined Contributions and Long-Term Strategies under the Paris Agreement. They can address biodiversity targets under the UN Convention on Biological Diversity. They support connectivity for migratory species under the Convention on Migratory Species and contribute towards land degradation neutrality targets under the UN Convention to Combat Desertification. Protection and restoration of peatlands helps safeguard the human right to a clean, healthy and sustainable environment (A/RES/76/300) and can help move towards reconciliation with Indigenous Peoples and Local Communities who have lived in harmony with peatlands for thousands of years.

Key Recommendations

This assessment calls for the following actions to be taken by governments and other interested or affected parties as they develop and implement national peatlands policies, strategies and action plans:

- Develop and maintain data systems on peatland extent, condition and uses, to inform policy planning and regulations. National Wetland Inventories prepared by parties to the Convention on Wetlands are a good starting point for such systems.
- Expand protected area systems to include peatlands using evidence on the location and conservation status of peatlands provided in this assessment.
- Place buffer zones around peatlands so that encroaching threats can be averted in collaboration with local communities before they result in damage.
- Strengthen regulations to prevent or halt harmful operations like peatland drainage for agriculture and forestry, and inadvertent loss of peatlands for other uses (like minerals, oil and peat extraction).
- Initiate medium-term plans for phasing-out harmful operations that are already taking place and establish licenses that require more sustainable practices and peatland restoration obligations for the transition period.
- Form fair, transparent and gender-responsive governance systems that cross sectors and empower stewardship by Indigenous Peoples and Local Communities through devolved decision-making such as indigenous co-management and community-led conservation.
- Create subsidies and fiscal mechanisms that incentivize practices that support the protection, restoration and sustainable management of peatlands.
- Eliminate perverse incentives and disincentivize activities that are driving peatland degradation and conversion.
- Use blended finance to combine public and private sector funding to scale-up the conservation, restoration and sustainable management of peatlands. Carbon and other ecosystem market mechanisms as well as a range of green finance instruments have the potential to provide returns to investors and benefits to local populations if proper safeguards are in place.
- Establish robust monitoring frameworks to ensure action for peatland conservation, restoration and sustainable management is tracked. It must then be reported on in line with national and international reporting obligations and used to inform future management.
- Support collaboration and engage in international networks and initiatives that work to advance inter-sectoral decision-making and interdisciplinary research on peatlands.

Summary on the State of Peatlands Globally

What we know

Global peatlands are estimated to cover close to 500 million hectares in this assessment. This is more than the land size proposed in previous assessments and may still be thought to be an underestimate. Like in earlier assessments, the global mapping does not reach full consistency. This is mainly because of the diversity amongst peatland definitions in use in different parts of the world and a lack of a uniform indicator of the presence of peat. Global mapping and statistics rely on the compilation of (sub)national data with different, often historically determined, definitions of peatland. The assessment has therefore mainly used the peatland definitions contained within the original studies.

In this respect it is good to be aware that conventional peatland definitions were mainly informed by agricultural considerations (e.g., plow depth), leading to common thresholds of 20-50 cm of peat depth. Inclusion of climate concerns would, because of the enormous carbon density of peat, lead to more shallow thresholds (e.g. 10 cm), which would significantly increase the area of peatland regionally and globally. For example, if using a ≥30 cm threshold, Russia's peatlands extend over 139 million hectares but, if using a ≥10 cm threshold, the country has over 368 million hectares i.e., 2.6 times more. Because of lack of global data, the Global Peatland Map 2.0 produced for the GPA (below) reflects mainly a 30-40 cm threshold, although a shallower threshold might be more appropriate in order to account for peatlands' contribution to climate. This issue could be further addressed in future updates of the assessment. More work is also needed to identify peatlands that still remain undetected.

Thanks to an unprecedented international data gathering effort, the Global Peatland Map 2.0 is the most comprehensive peatlands map ever created. It is a tool for decision-makers to help them identify priority areas for conservation, restoration and sustainable management. Created from data collected from peer-reviewed publications and national agencies complemented by remote sensing work, the new map largely overcomes key gaps in previous maps. It reveals that the majority of the world's peatlands can be found in Asia (33%), North America (32%), Latin America and the Caribbean (13%), Europe (12%), and Africa (8%). The remaining 2% are spread between Oceania and Sub-Antarctic Islands.

Whereas degraded peatlands cause enormous environmental, health and economic challenges, around 88% of global peatlands remain undegraded in a mostly natural state. The map shows that these are concentrated in remote and inaccessible areas, mainly in subarctic and boreal zones. Peatlands in both temperate and tropical regions that are readily accessible are more likely to be modified or degraded.

The assessment reveals a number of newly recognized peatlands in regions where they were under-represented in previous maps. This will inform more comprehensive mapping and assessment and raise awareness of the importance of peatlands in these locations. Unfortunately, there are still significant knowledge gaps around peatland extent and condition in many parts of the world, particularly in Africa, Amazonia and the far north.

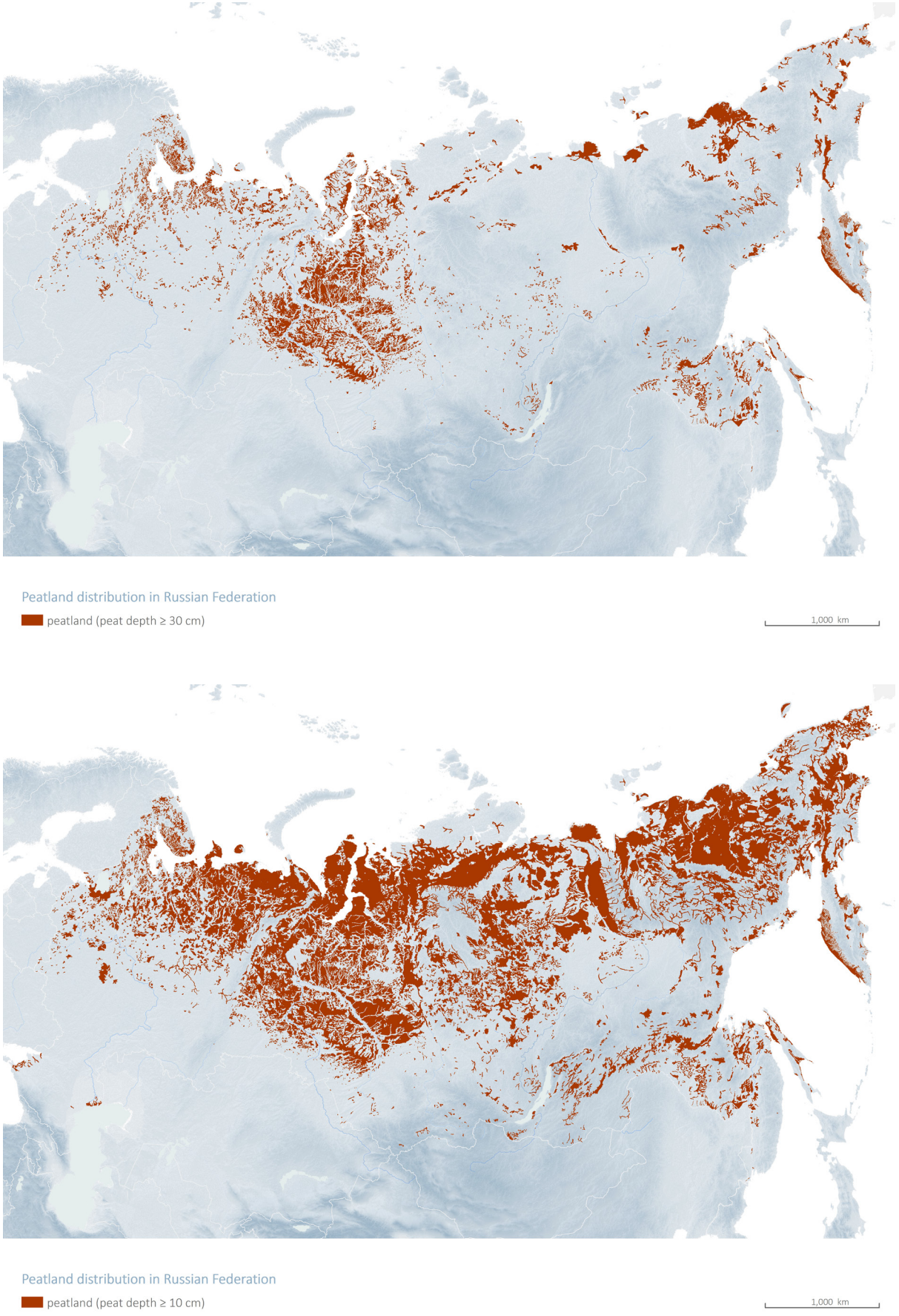

Figure 0.1: Comparison between peatland distribution in the Russian Federation when considering two different peat depth thresholds: Figure 0.1a: peat depth ≥30 cm and Figure 0.1b: peat depth ≥10 cm.

Source: Global Peatlands Assessment data retrieved from the Global Peatland Database compiled by the Greifswald Mire Centre.

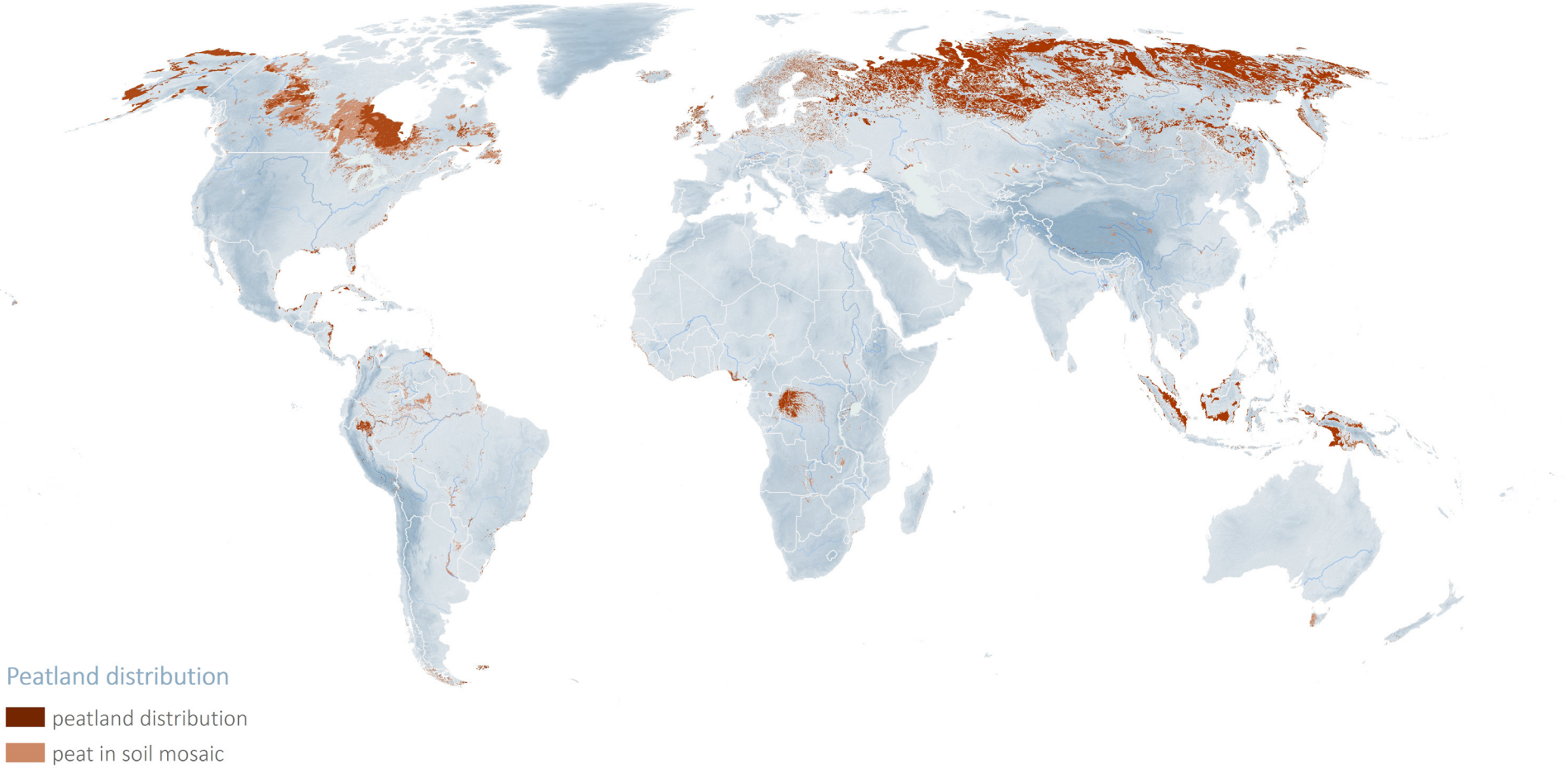

Figure 0.2: The Global Peatland Map 2.0.
Source: Global Peatlands Assessment data retrieved from the Global Peatland Database compiled by the Greifswald Mire Centre.

Key Findings

Three important discoveries

The Global Peatlands Assessment reveals three key findings.

First, healthy peatlands are being lost and degraded at a rate that is ten times faster than their rate of expansion over the last 10,000 years. Worldwide, around 12% of current peatlands are degraded to the extent that peat is no longer formed and the accumulated peat carbon stock is being lost. 500,000 hectares of peatlands that are accumulating peat (and thus actively capturing and storing carbon) are being destroyed by human activities annually.

Second, peatland degradation, excluding fires, is releasing about 2,000 Mt CO_2e of greenhouse gas emissions per year. This represents around 4% of total global anthropogenic emissions. If greenhouse gas emissions from drained and degraded peatlands continue at this rate, this will consume 12% of the emissions budget that remains to keep global warming below +2 °C and 41% of the emissions budget that remains to keep global warming below +1.5 °C. The dry conditions that follow drainage also increase the risk of severe losses in the event of peatland fires and increased erosion. Emissions from degraded peatlands are revealed in the graph below which shows 85% of these emissions originating from 25 parties to the UN Framework Convention on Climate Change.

Third, the diversity amongst peatland definitions in use in different parts of the world has hampered efforts to consistently identify, map and manage peatlands on a global scale. This assessment uses the definition of peatlands as ecosystems with a peat soil of any thickness and is consistent with the Convention on Wetlands definition (Convention on Wetlands COP8 VIII.17) and for practical purposes, widely used a 30-40 cm peat threshold. It however recognizes that a 10 cm threshold might be more appropriate in order to account for peatlands' contribution to climate. Countries may consider this especially in future mapping and inventories or assessments to fully capture the extent of their peatland carbon stock and facilitate effective policies for protection, restoration and sustainable use.

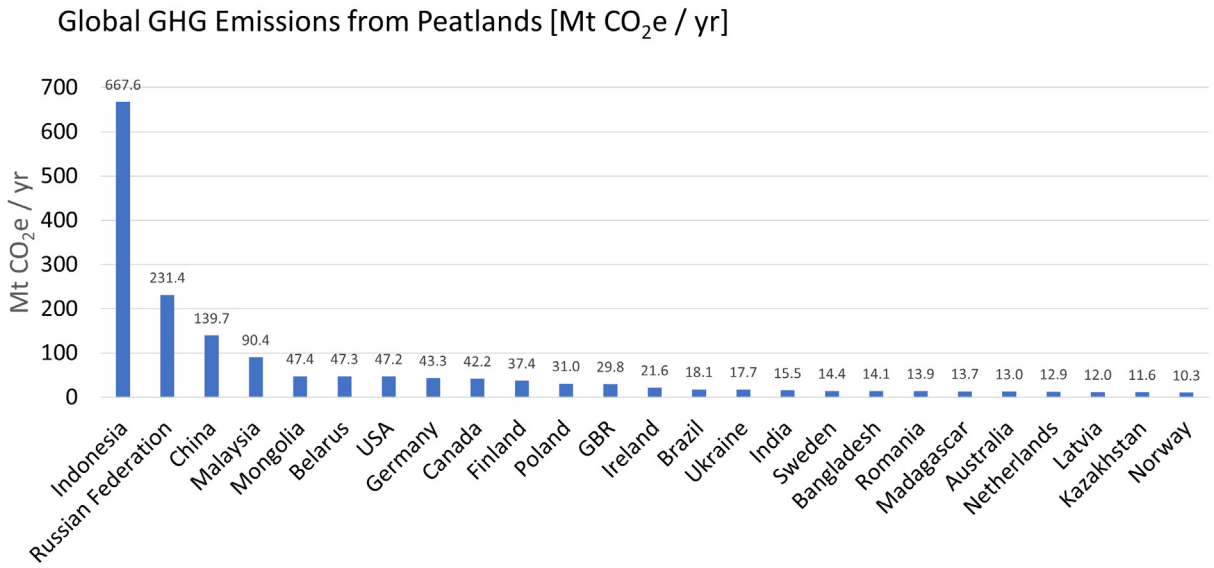

Figure 0.3: Estimated global greenhouse gas emissions from degraded peatlands from top 25 countries. Calculations are based on the peatland drained area for forestry, agriculture and peat extraction and IPCC (2014) emission factors including CO_2, CH_4, N_2O, DOC, and emissions from ditches. Includes only net, on-site GHG emissions. Wildfire emissions are not included.

Source: Global Peatlands Assessment data retrieved from the Global Peatland Database compiled by the Greifswald Mire Centre.

Regional Summaries

Essential peatlands information on each part of the world

Asia Summary
33% of global peatlands

Asian peatlands are among the most diverse and geographically extensive in the world with over 160 million hectares spread from boreal North Asia to the temperate region of East Asia and tropical Southeast and South Asia. The Asian part of the Russian Federation contains 118,500,000 hectares of peatland. With 33% of global peatland extent, Asia is the continent with the largest peatland area in the world. Southeast Asia contains close to 24 million hectares or 5% of the global peatland resources. Besides the Russian Federation, large peatland areas are found in Indonesia, China, Kazakhstan, India, Malaysia and Mongolia. Southeast Asian tropical peat swamp forests contain some of the highest floral diversity in the world. This diverse flora supports a range of fauna including charismatic species like the Orangutan, Tiger, Clouded Leopard, Sun Bear and Gibbon.

These peatlands are under threat. It is estimated that, of Asia's 160 million hectares of peatlands, 13% are degraded while just 10% are situated within protected areas. Climate change is exacerbating degradation. So too is overgrazing by livestock, peat extraction and peatlands mining in highlands of Central Asia, conversion of peatlands for agriculture and industrial plantations in Northeast China and logging, drainage for plantations and wildfires in Southeast Asia. Southeast Asia alone lost more than half of its peat swamp forests between 1990 and 2010. Estimated greenhouse emissions from degraded peatlands in Asia are more than 1,000 Mt CO_2e per year. Indonesia reported average annual emissions of around 500 Mt of CO_2e from peat decomposition and fires. Malaysia reported around 29 Mt of carbon losses from drained organic soils. Few other countries in the region include peatlands as a key category of emissions in their reports to UNFCCC.

Subregional and transboundary agreements to tackle peatland fires causing widespread haze provide a good example for the type of coordination that will be needed to scale up solutions to degradation. The Association of Southeast Asian Nations (ASEAN) Agreement on Transboundary Haze Pollution signed in 2002 is a commitment of 10 Member States to work together to monitor and tackle the problem of haze pollution. The associated ASEAN Peatland Management Strategy (2006-2020) has facilitated National Action Plans and on-the-ground measures across the region to protect and restore peatlands and prevent peatland fires. Collaboration on implementing the agreement has enabled countries affected by the degradation of peatlands to work together to better protect and restore peatlands, reducing fires and greenhouse gas emissions.

North America Summary
32% of global peatlands

Peatlands cover an estimated 158 million hectares on the continent. The majority is found in the subarctic and boreal zones. Less than 2% of peatlands in the region are degraded. Estimated greenhouse emissions from degraded peatlands in Canada and the United States are 89 Mt CO_2e per year.

Historically, drainage for agriculture has been the main threat to North American peatlands, but they are now also threatened by oil and gas exploitation. The impact of thawing permafrost as a result of climate change needs more investigation. Mining concessions have been granted within many peatland areas, with the potential for substantial greenhouse gas emissions and loss of other ecosystem services.

Climate change may lead to increased plant productivity and uptake of carbon in some North American peatlands, but this effect is expected to be more than offset by substantial emissions from permafrost thaw, coastal erosion by sea-level rise, oxidation of dried out peats and fires which are expected to increase in frequency and severity.

Where peatlands are damaged, compensatory mitigation and offsetting policies can drive restoration, but policies and implementation vary across the continent. Most Canadian provinces have wetland policies that provide for compensatory peatland restoration to offset unavoidable loss and damage to peatlands. However, in most states, there is no moratorium on removal and destruction of peatlands to access oil and gas or ore mining or complete flooding for hydro-dams and no requirement that restoration is like-for-like (so loss of peatlands could be compensated via restoration of wetland habitats that are not peatland). An exception to this rule is Quebec's financial compensation procedure, which makes peatland destruction significantly (sometimes prohibitively) more expensive and includes a legal obligation for an action plan and follow-up measures to preserve biodiversity, restore habitats for species and maintain ecosystem services. USA federal law operates under a "no-net-loss" principle for wetlands that also requires compensatory restoration or offsetting. This has promoted carbon offsetting schemes, habitat banking systems and investment in non-regulatory conservation programmes. However, differences in implementation across states and exemptions for agriculture and drainage activities have sometimes undermined this protection.

Less than 20% of peatlands in North America are within protected areas. This includes national, provincial, territorial or state parks, land trusts and Indigenous Protected and Conserved Areas (IPCA). Some of the most biodiverse peatlands are found in the subtropical zone. For example, The Everglades of Florida are an expansive peatland landscape, covering 100,000 hectares, with Everglades National Park at its southern end designated as a Ramsar Wetland of International Importance and a United Nations World Heritage Site. Nevertheless, a number of species that depend on peatlands in North America are in decline including the Woodland Caribou, Blanding's Turtle, the Eastern Massasauga Rattlesnake and many migratory bird species.

Further policy development and implementation in collaboration with Indigenous Peoples is needed, ensuring that both women and men benefit from peatland services and contribute to their development. Regulators and government bodies need to better enforce existing peatland/wetland policies before co-developing new policies and strategies for the restoration and sustainable management of peatlands.

Given the large proportion of intact peatlands in North America, conservation is particularly important. A good example from Canada can be seen in the IPCAs, where Indigenous governments have the primary role of protecting and conserving ecosystems through Indigenous laws, governance and knowledge systems. Several IPCAs have been established since 2018, including the Edéhzhíe Dehcho Protected Area/National Wildlife Area that covers 1.4 million hectares of boreal forest and the Thaidene Nëné IPCA that includes 2.6 million hectares of forest and tundra.

Latin America and the Caribbean Summary

13% of global peatlands

Peatlands are estimated to cover 63 million hectares in Latin America and the Caribbean. Peatlands are found mainly in the (sub)tropical lowlands of South America, Central America and the Caribbean, the (sub)tropical mountains of Guyana, the Andes, the Central American and Central East Brazilian Highlands, and temperate Patagonia in southern South America. Research into peatland carbon stocks is limited in the region but recent studies estimate that peatlands in the Peruvian Amazon store ca. 5,400 Mt of carbon. Peatlands of Patagonia are the principal carbon sink and carbon stock in the extratropical Southern Hemisphere. Estimates of the amount of carbon stored differ due to uncertainties in peatland extent and depth but they are thought to be substantial.

Peatlands in Latin America and the Caribbean support a unique floral diversity that is adapted to peatland environments. Lowland Amazonian peatlands host particularly high levels of regional species diversity. High Andean peatlands have characteristic cushion plants, and Patagonian peatlands host unique plant species. These plant communities provide important habitats for fauna, with many species found in peatlands under threat. For example, in lowland palm swamps, *Mauritia flexuosa* provides an important food source for many species, such as the Lowland Tapir, and provides nesting sites for species like the Blue and Yellow Macaw. Mangroves, freshwater swamps and marshes also provide nesting sites for migratory bird species and habitat for crocodiles, turtles, jaguars, monkeys and raccoons.

Peatlands in the region help to regulate water flow into rivers and provide clean water for many communities. For example, peatlands in the Brazilian Cerrado are the only source of water for rural communities and wildlife. Quito, Ecuador, is home to nearly 2 million people of whom 90% depend upon montane peatlands for their domestic water supply. Peatlands also produce many food products and materials and are closely linked with the cultural identities of some Indigenous Peoples.

The intensity of human impacts on peatlands varies greatly across the region. Estimated greenhouse emissions from degraded peatlands in Latin America and the Caribbean are around 91 Mt CO_2e per year.

There are intact peatlands that require protection and highly degraded peatlands that require restoration. Overall, peatlands in the region are poorly protected and increasingly under threat from resource extraction, mining, changing climate, establishment of infrastructure, overgrazing by livestock, drainage, active burning, invasion by invasive species, conversion for agriculture and urbanization. Timely protection and management can reduce these threats.

Most countries in Latin America and the Caribbean lack peatland inventories and only a few have peatland policies or strategies in place. Furthermore, few have included them into international commitments like Nationally Determined Contributions. This undermines attempts to protect remaining peatlands in the region. There are also conflicts between different policies. For example, Brazilian palm swamps (Veredas) are protected by 50 metre buffers under the New Forest Code, but drainage and agricultural use of floodplains is promoted through the Provárzeas national program which leads to the degradation of protected peatlands.

There is an urgent need to improve awareness and understanding of Latin America and the Caribbean peatlands as they are not well recognized. Peatland policies and strategies need to be developed in collaboration with Indigenous Peoples and Local Communities ensuring gender-responsive approaches. There are now examples of local knowledge being used to sustainably manage peatlands. For example, in the Pacaya Samiria national reserve (Peru), climbing techniques for fruit harvesting were developed by local people to replace the practice of cutting palms. In the Andes the traditional pre-Hispanic water management practices can contribute to manage and restore peatlands. And a participatory process has been carried out with local communities in Argentinian peatlands over 20 years leading to the Tierra del Fuego Peatland Use Plan that regulates peat mining and protects peatlands identified as important for conservation.

Europe Summary
12% of global peatlands

Peatlands cover an estimated 59 million hectares in Europe. They are distributed unevenly with a higher density in the northern lowlands, highlands and coastal areas, and more sparsely distributed in steppe and broadleaved forest zones. Europe has experienced the largest proportional degradation of peatlands of any continent in the world, and so their former extent has been significantly higher.

Large-scale, drainage-based economic use of peatlands began in Europe over a thousand years ago and still includes a wide range of uses from food, fodder, timber and energy production from peat extraction. Large peatland areas were historically transformed into construction areas, mining sites or fragmented by roads. Many of these uses have compromised the provision of wider ecosystem services. This has led to biodiversity loss, a reduction in water supply in quality and quantity and significant greenhouse gas emissions as well as losses in resilience of ecosystems and adaptation capacity. Non-degrading land use of wet peatlands such as the collection of berries, collection of medicinal plants, collection of reeds and hunting of animals have a longer history but were displaced in many regions by drainage-based peatland use.

Almost 50% of the European peatland area is degraded. This makes Europe the second largest current greenhouse gas emitter from drained peatlands at close to 600 Mt CO_2e per year and also the highest historical emitter in cumulative terms. The main reason for peatland drainage is agriculture. Close to 20% of the continent's peatlands are currently situated in protected areas. The European Red List of Habitats contains thirteen peatland habitats, three of which are listed as endangered and one as critically endangered. Conservation of undegraded peatlands on the continent is of highest priority.

The challenges associated with peatland management in Europe have not been fully addressed in land-use and climate policies. Peatland drainage and its maintenance for agriculture, forestry as well as energy are still subsidised in many countries. Furthermore, the EU and national agricultural policies and payments from associated agri-environment schemes rarely support sustainable peatland management practices but increase competitiveness of drainage-based land use artificially. The use of peat as local fuel, substrate and growing media in European households is still considered in many countries as a usual practice.

In several European countries, large scale restoration programmes are now underway, although to date these are addressing only a fraction of the damaged area. Where damaging practices cannot be reversed and peatlands restored, policies to raise water levels in peatlands still used for forestry and agriculture should be considered. In many cases, a return to a natural state for peatlands on the continent may not be possible due to the severity of the degradation. However, restoration of some peatland ecosystem functions, such as reduced carbon emissions, regulation of water flow and sediment retention, may still be viable. Raising the water level in peatland forests and agricultural peatlands decreases but does not halt peat loss in all cases but, by reducing drainage intensity in situations where full rewetting is not possible, some climate benefits can still be realized. Drained peatlands represent only 3% of the EU's agricultural land and rewetting them would avoid up to 25% of the EU's greenhouse gas emissions from agriculture.

Paludiculture, defined here as 'productive land use of wet and rewetted peatlands that preserve the peat', can reduce greenhouse gas emissions rapidly while also maintaining income for farmers, fisher-folk and others who make their livelihoods from peatlands. Paludiculture therefore has significant potential, particularly on degraded peatlands, to deliver social, economic and carbon reduction objectives over large land areas. Although the opportunity costs of switching to paludiculture can be high on sites that are currently used for profitable land use (e.g., horticulture, dairy farming), new markets are developing for wetland species crops and additional income (through for example ecosystem services payments) may make paludiculture increasingly attractive in the future.

National Peatland strategies have been developed in many key European peatland countries, but mainstreaming with overall climate, biodiversity and land use policies is still lacking ambition and enforcement. This will need to change in order to achieve overarching societal targets including those of a future EU Nature Restoration Law. A joint strategy or Pan-European initiative could foster peatland conservation and sustainable use across the continent, including sharing of best practices and addressing land use driven by international demand and supply.

Africa Summary
8% of global peatlands

Peatlands cover close to 40 million hectares across Africa. The Nile Basin peatlands store 4,200-10,000 Mt of carbon while the Congo Basin peatlands store around 30,000 Mt. The greenhouse gas emissions resulting from degradation of Africa's peatlands are around 130 Mt CO_2e per year, with eight countries contributing 50% of these emissions.

Africa's peatlands play an important role in regulating water flow and maintaining water purity. Millions of people depend upon them. Several major river systems arise in peatlands, such as the Okavango, Orange and Zambezi in Southern Africa and the Congo and Nile rivers in Western and Eastern Africa. Their loss will threaten water supplies as well as increase the likelihood of flash flooding downstream due to lost upstream water retention capacities in peatlands. Local communities benefit directly from the collection of food, fibre and medicines from wet peatlands. Many peatlands have significant cultural value too.

Africa contains some of the world's most important and most recently recognized peatlands. Their protection and sustainable management are crucial for climate, biodiversity and people. There are several important biodiverse African peatlands. The Palmiet peatlands of South Africa are dominated by the endemic *Prionium serratum* semi-aquatic shrub which creates a home for many rare and valuable species. Other important peatlands include the cushion plant-dominated Bale Mountains of Ethiopia and the Cuvette Centrale peat swamp forests that are home to populations of Lowland Gorilla, Forest Elephant, Bonobo and Dwarf Crocodile. While most African countries have wetland policies, the majority make no specific reference to peatlands.

African peatlands are being degraded at an alarming rate. This is creating an urgent need to protect, restore and sustainably manage them. Peatland degradation has been reported in all African countries known to host peatlands. Indeed, twelve countries report that more than 50% of their peatlands are already degraded. Drivers of degradation include drainage for plantation and smallholder agriculture, extraction of peat for burning in power plants and for use in agriculture. Other threats include urbanization drainage to satisfy increasing demands for water supply and infrastructure development.

Regional policy initiatives related to the conservation and sustainable management of African peatlands include the Brazzaville Declaration on Peatlands and the Nile Basin Initiative with its specific peatlands workstream. South Africa also has a supportive policy framework. Enforcement remains a major issue across much of the continent.

There are a number of important knowledge gaps and needs to be met to ensure protection and sustainable management of Africa's peatlands. These include collecting baseline data on the occurrence of peatlands and the status of poorly known sites, increasing awareness of the importance of peatlands, raising awareness among policy-makers on how these sites can be better managed and mobilizing international funds and private finance to protect these peatlands. As new policies and market-based approaches are developed, it is essential to engage local populations, promote gender-responsive approaches, and draw upon local knowledge to sustain livelihoods alongside the protection, restoration and sustainable management of Africa's peatlands.

Oceania and Antarctica Summary

2% of global peatlands

Oceania and Antarctica is a diverse region including Papua New Guinea, Australia and New Zealand, Pacific Island countries and territories, Antarctica and Sub-Antarctic islands. Papua New Guinea and the southern regions of Australia and New Zealand support extensive peatland ecosystems. Oceania has few peatlands due to biogeographical conditions for peatland formation being rare. Overall, peatlands are estimated to cover 7 million hectares in Oceania and around 70,000 hectares in the Sub-Antarctic Islands.

Oceanian peatlands are among the most threatened and least understood in the world. Substantial areas of coastal and lowland peatlands in Oceania have been lost since European settlement, particularly in Australia and New Zealand. Key drivers of change across the region are drainage and agricultural conversion, climate change and fire. Other notable drivers in specific areas are peat extraction, pollution, invasive species, logging and infrastructure development. New Zealand has lost large areas of peatlands due to drainage and development for agriculture. Rewetting and restoration of degraded peatlands is urgently needed to meet biodiversity and climate goals. However, until this assessment, little was known about the distribution and state of Oceanian peatlands. There is still precious little known about the carbon stocks of these areas.

Peatlands in the region are home to many unique habitats and species. Many are under threat. For example, the endemic Sunset Frog is only found in the wettest peatlands of southwestern Australia where it is vulnerable to climate change and land use impacts. Similarly, buttongrass moorlands of western Tasmania are the last stronghold for the Eastern Ground Parrot, one of only five ground-dwelling parrots in the world.

Indigenous knowledge and stewardship of peatlands is fundamental to their wise use and sustainable management in Oceania. Peatlands in the region often form part of Indigenous People's interconnected lands, water and living things. In Australia, 39% of the peatlands are co-managed by Indigenous Peoples (mainly in Tasmania) and 8% are subject to special rights. Peatlands often form part of cultural origin traditions and are often believed to be the sacred dwelling places of important deities or ancestors. A common thread across most indigenous societies of Oceania, prior to colonization, was that peatlands commonly used to preserve, through burial, treasured items that would normally rot away, such as wooden canoes. Papua New Guinea retains vast areas of peatlands that are critical for traditional and modern economies and human wellbeing. These intact peatlands are increasingly threatened by economic development, including industrial activities.

While many regions of Oceania do not have a strategy for peatland protection, restoration and sustainable management, peatland conservation and restoration policies have been implemented in Australia and New Zealand. However, peatland degradation continues and the lack of information on the status and extent of degraded peatlands in the Oceanian region hampers regional plans and action. Estimated greenhouse emissions from degraded peatlands in Oceania are around 28 Mt CO_2e per year.

Better information on peatland carbon stocks in Oceania is urgently needed to improve management of intact and degraded peatlands for climate change mitigation and other benefits. Support and resources to develop a unified and robust Pacific Island soil information system, knowledge resource and monitoring program are crucial to assess these peatlands as a natural asset and carbon sink and to ensure that peatlands in Pacific Island countries are not lost before they are even documented.

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