Peatlands: underappreciated but vital ecosystems

Peatlands are among the world’s most underappreciated natural treasures. Composed of thick layers of partly decomposed organic material that may have formed over thousands of years, peatlands are highly effective at storing carbon.

While covering only three percent of the Earth’s land mass, they contain as much carbon as all terrestrial biomass combined, twice as much as all global forest biomass, and about the same as in the atmosphere.

Peatlands provide many ecosystem services such as flood control, water purification and habitats for unique and varied biodiversity. These ecosystems support a wide range of plants, birds and animals. They are also a home to a wide range of native foods, economically important trees and peat itself has been used as a fuel source.

Drainage and degradation are global threats

Across the globe peatlands are under threat from drainage and burning for agricultural, forestry and development purposes. Fifteen percent of known reserves are understood to be either destroyed or degraded.

Degraded or drained peatlands release the carbon historically locked within layers of decomposed organic matter and are thought to contribute up to five percent of annual global CO₂ emissions. Half the world’s peatland emissions come from Southeast Asia where high rates of deforestation, drainage and high temperatures speed up decomposition of the dry peat.

Draining the surface of peatlands is often used to maximize agricultural use of the soil, but this leaves them vulnerable to fire which can significantly increase greenhouse gas emissions. Peatland fires can burn for a long time and the smoke carries particulate matter into the atmosphere which can adversely affect the health of communities. Dry peatlands are also susceptible to subidence and are prone to flooding and erosion, creating further pollution problems. In coastal areas, this subidence can lead to salt water intrusion leaving the land completely unproductive and potentially leading to the contamination of the water table.

Climate change will make things worse

Climate change is likely to increase pressure on peatland ecosystems, especially on those that are already degraded. Yet peatlands can play an important role in climate change mitigation by providing secure long-term storage of carbon and other greenhouse gases. However, to allow them to play this role requires putting an end to their drainage and restoring already degraded peatland areas.

What is to be done

The map overlaid complements the recently released Rapid Response Assessment called Inside on Water – Countering global threats from peatland loss and degradation. That report issues a call to action on peatlands. Its main messages are:

1. Peatlands are important to human societies around the world. They contribute significantly to climate change mitigation and adaptation through carbon sequestration and storage, biodiversity conservation, water regime and quality regulation, and the provision of other ecosystem services that support livelihoods.

2. Immediate action is required to prevent further peatland degradation and the severe environmental, economic and social repercussions it entails. Existing options to tackle the issue vary, and for that reason implementation should be regionally adapted to local environmental, economic and social needs and characteristics.

3. A landscape approach is vital and good practices in peatland management and restoration must be shared and implemented across all peatland landscapes to save these threatened ecosystems and their services to people.

4. Local communities should receive support to sustainably manage their peatlands by processing traditional non-destructive uses and introducing innovative management alternatives.

5. A comprehensive mapping of peatlands worldwide is essential to better understand their extent and status, and to enable us to safeguard them. Research and monitoring should be improved to provide better maps and tools for rapid assessment and transparent use of them to underpin action and multi-stakeholder engagement.

Environmental and social impacts of peatland drainage

If we want to protect forests and life on land, safeguard our oceans, create massive economic opportunities, prevent even more massive losses and improve the health and well-being of the planet, we have one simple option: protecting our peatlands.

The initiative is based on the premise of the responsibility of current generations to ensure the conservation, restoration and sustainable management of peatlands to protect this critical ecosystem and to prevent the carbon it stores from being released into the atmosphere. Drawing attention to peatland issues and helping countries and partners to understand and make evidence-based decisions about their management will contribute to several Sustainable Development Goals by reducing greenhouse gas emissions, maintaining ecosystem services and securing lives and livelihoods by improving people’s ability to adapt to change.
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This map shows the known locations of peatlands and emissions from them, by country. The challenges in locating and defining peatlands means this map can not reflect either their true global extent or their total emissions. The additional information in the boxes on this map comes from the accompanying Smoke on Water Rapid Response Assessment. They highlight the importance of peatlands, the threats they face and the solutions to their loss and degradation.