Global Peatland Hotspot Atlas:
The State of the World's Peatlands in Maps
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UN environment programme

Peatland biodiversity

Peatlands are safe havens for rare and threatened species. Protecting them safeguards the habitats of countless unique animals and plants reliant on these vital ecosystems.

Global Peatlands Initiative

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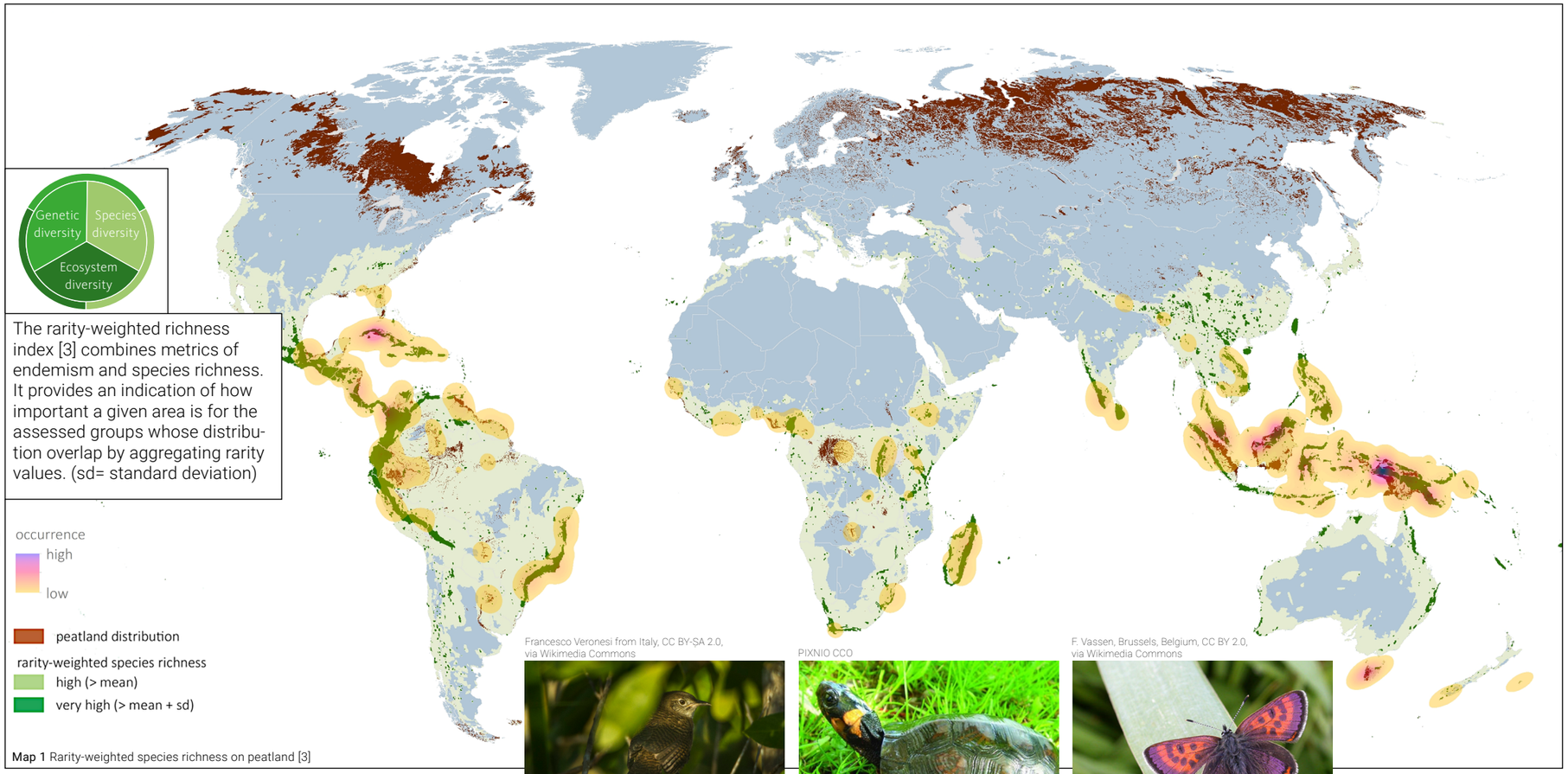
Peatland biodiversity

Biodiversity includes species diversity, ecosystem diversity, and genetic diversity, all of which are critical for the health and resilience of our planet, lives, and livelihoods. Peatland ecosystems are found around the world, with each region, elevation, and landscape setting from the arctic to the tropics contributing uniquely to the balance necessary for sustaining biodiversity. Protecting, conserving, and sustainably managing a variety of peatlands across all regions is fundamental for safeguarding species, ecosystem, and genetic diversity. It also helps preserve the vital ecosystem services these landscapes provide, both locally and globally, supporting migratory pathways and regulating the hydrological and carbon cycles.

Peatlands serve as essential habitats for rare, threatened, and endemic flora and fauna species. They also house common species that help maintain ecological balance, enhancing the ecosystem services they provide. Additionally, migratory species rely on peatlands as important nursery and stopover points during their life cycle journey, further connecting peatlands and promoting gene flow and interactions across landscapes. Peatlands in the northern hemisphere, particularly in boreal and arctic regions, exhibit lower species richness compared to tropical regions, but remain crucial for their role in the landscape. They harbor keystone species, such as Sphagnum mosses, which significantly shape peatland structure and functioning by regulating hydrology and playing a key role in carbon cycling through their effects on microbial communities. In the northern subtropics and southern hemisphere, peatlands are biodiversity hotspots, exhibiting a very high degree of species richness and diversity while also supporting a complex range of ecological processes and services connected across the basin and across the water continuum.

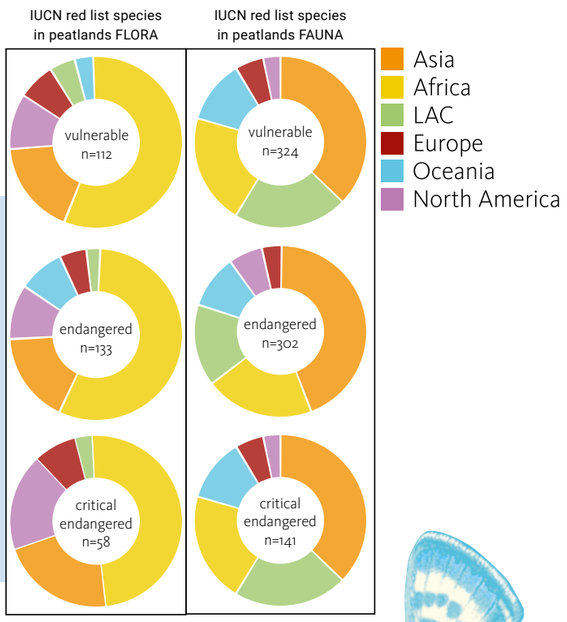
Biodiversity within peatlands extends beyond individual species and encompasses the ecosystem diversity of various peatland types—such as bogs, fens, coastal marshes and mangroves, or peat swamp forests —which harbor abundant and distinct plant and animal life. However, peatlands face increasing human encroachment, leading to rapid declines in biodiversity. Currently, 303 plant species and 767 animal species within global peatland ecosystems are classified as 'vulnerable,' 'endangered,' or 'critically endangered,' with around 3/4 of these species found in Africa, Asia, and Latin America and the Caribbean (LAC [1, 2]).

Peatlands are safe havens for rare and threatened species. Protecting them safeguards the habitats of countless unique animals and plants reliant on these vital ecosystems.



The rarity-weighted richness index [3] combines metrics of endemism and species richness. It provides an indication of how important a given area is for the assessed groups whose distribution overlap by aggregating rarity values. (sd= standard deviation)

Map 1 Rarity-weighted species richness on peatland [3]



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The **Zapata Wren** *(Ferminia cerverai)* is an endangered bird endemic to Cuba, primarily found in the dense, cattail-dominated wetlands and peatlands of the Zapata Swamp.

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The **Bog Turtle** *(Glyptemys muhlenbergii)* is a semi-aquatic endangered turtle native to the eastern United States of America, facing decline due to habitat loss from urbanization and invasive plants.

F. Vassen, Brussels, Belgium, CC BY 2.0, via Wikimedia Commons

The Blue Iridescent Firefly *(Lycaena helle)* occurs in Central, Eastern and Northern Europe, as well as parts of Siberia and Mongolia. It inhabits fens with snake knotweed (Bistorta officinalis), wet tall herbaceous meadows, transitional mires, and sparse peatland forests. Its greatest threat is habitat destruction resulting from the conversion of peatlands through drainage.

Palmiet wetland, South Africa © WWF Zambia

Palmiet *(Prionium serratum)* is an endemic semi-aquatic grass found in the valley bottom fens of South Africa's Western and Eastern Cape. These palmiet dominant peatlands host many rare species, but face threats from draining, agriculture, grazing, afforestation, and infrastructure development.

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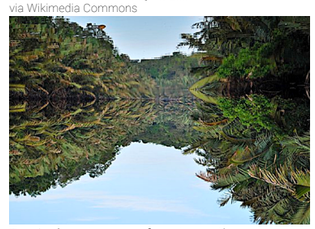
The **Eastern Ground Parrot** *(Pezoporus wallicus wallicus)* occurs in western mainland Australia, Tasmania, and some offshore islands. It thrives in marshy coastal plains without trees and in reed beds with low shrubs, relying on naturally occurring fires to reproduce and colonize new areas.

Berbak National Park, cc-by-sa-2.0. via Wikimedia Commons



Tropical peat swamp forests are the most widespread peatland ecosystems in Southeast Asia, home to at least 1,524 plant species, including a large number of mosses, ferns and fungi. They exhibit the highest floristic peatland diversity globally and support a significant portion of the region's fauna, including 123 mammal species, 268 bird species, and 219 freshwater fish species [4].

Sources: 1) UNEP (2022) Global Peatlands Assessment – The State of the World's Peatlands: Evidence for action toward the conservation, restoration, and sustainable management of peatlands. Main Report. Global Peatlands Initiative. United Nations Environment Programme, Nairobi. 2) Greifswald Mire Centre (2022) Global Peatland Map 2.0. Underlying dataset of the UNEP Global Peatland Assessment. 3) UNEP-WCMC (2022) Rarity-weighted species richness created from species range polygons extracted from the IUCN Red List (IUCN Red List of Threatened Species (2021) Version 2021.3. http://www.iucnredlist.org) for amphibians, birds, mammals and a few comprehensively assessed fresh water groups (shrimps, crabs and crayfish). Reptiles were added from IUCN Red List (IUCN Red List of Threatened Species (2022) Version 2022.1. http://www.iucnredlist.org). 4) Posa, M.R.C., Wijedasa, L.S., Corlett, R.T. (2011) Biodiversity and Conservation of tropical peat swamp forests. BioScience 61(1): 49–57.