

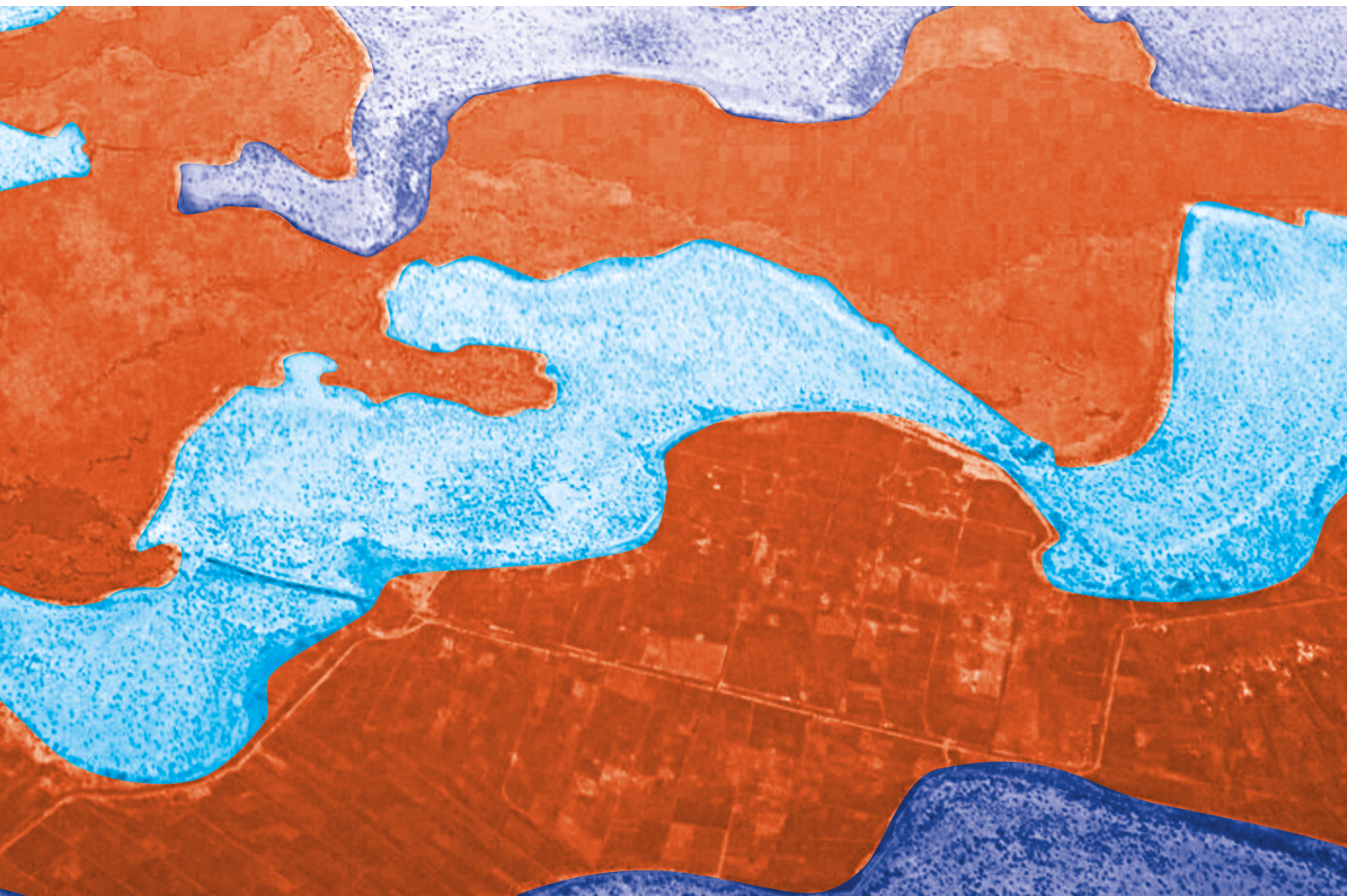


Global Peatland Hotspot Atlas:
The State of the World's Peatlands in Maps
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Peatland in dryland

Peatland in dryland, whether in hot or cold steppe and desert climates, face significant regional shrinkage risks that will worsen as climate extremes intensify.



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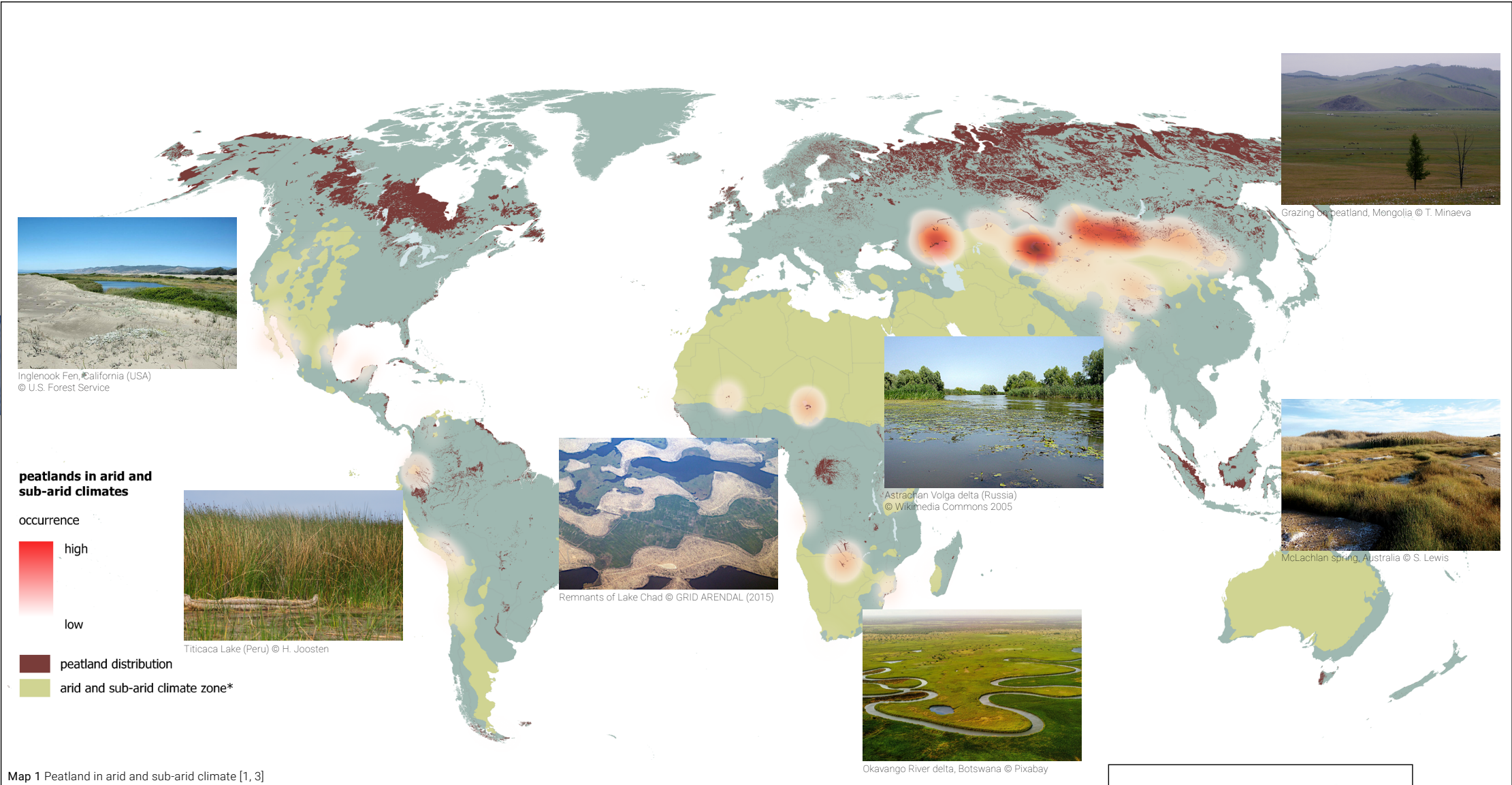
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Peatland in dryland



Map 1 Peatland in arid and sub-arid climate [1, 3]

There are numerous significant impacts on wetlands and peatlands in drylands, including drainage, agriculture, overgrazing, pollution (including runoff from agricultural areas), erosion, and climate change, all of which disrupt flooding patterns. Among these, the most serious impact comes from large-scale water abstraction, severely affecting wetland ecosystems in the world's arid zones. The fate of the Aral Sea starkly underscores the urgent need to preserve the wetlands. Its significant drying has resulted in fragmentation, ecosystem degradation, and severe impacts on local economies and livelihoods. **The risk of wetland shrinkage in drylands is pronounced at the regional level and is expected to worsen with increasing climate extremes** [5]. There are many examples of these wetlands' decline

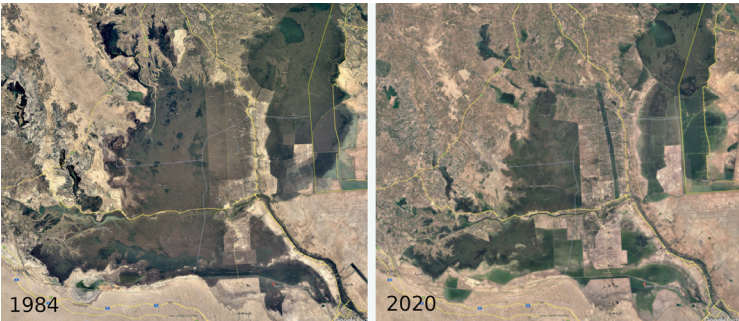


Figure 2 Wetland loss in the Hammar marshes (Iraq) from 1984-2020 due to drainage, dam construction, and agriculture (Satellite images by Google Earth).

(including peatlands): Lake Chad in Africa has experienced lowering water levels, adversely impacting fish populations and other wildlife, and leading to the desertification of former wetlands and the loss of arable land [7]. In China's dry inland areas, wetlands have declined by about 70,000 hectares over the past 40 years [6, 8]. The substantial ecological degradation of wetlands in southeastern Australia during the millennial drought (2001-2009) highlights their vulnerability to climate change [9, 10]. **Accelerated by climate change, it is projected that at least 6,000 dryland wetlands worldwide will disappear by 2100** [5].

Peatland in dryland, whether in hot or cold steppe and desert climates, face significant regional shrinkage risks that will worsen as climate extremes intensify.

Aridity characterizes drylands that severely lack available water, hindering or preventing the growth and development of plant and animal life. There are two subtypes: 1) hot or cold arid-desert climates, showing severe excess of evaporation over precipitation, and 2) hot or cold sub-arid or steppe climates, being intermediates between desert and humid climates. Drylands occur on every continent in the world, covering 33 % of the Earth's land surface, including 57 % of Africa, 69 % of Australia, and 84 % of the Middle East. **The largest peatland extents in such drylands occur**

under cold steppe and desert climates in Central Asia, parts of the Andes, and the Volga-Delta region in Kazakhstan, where they are potentially related to permafrost or water discharge from connected mountain ranges. **Peatlands under hot steppe and desert climates occur primarily in sub-Saharan Africa** (Lake Chad, Barotse Floodplain, and the Okavango Delta), **as well as in coastal areas of the Gulf of California and the Gulf of Mexico**. Arid swamps vary from fresh to saline waters as they dry out, supporting grass, sedge, herb, shrub or tree vegetation [1, 2].

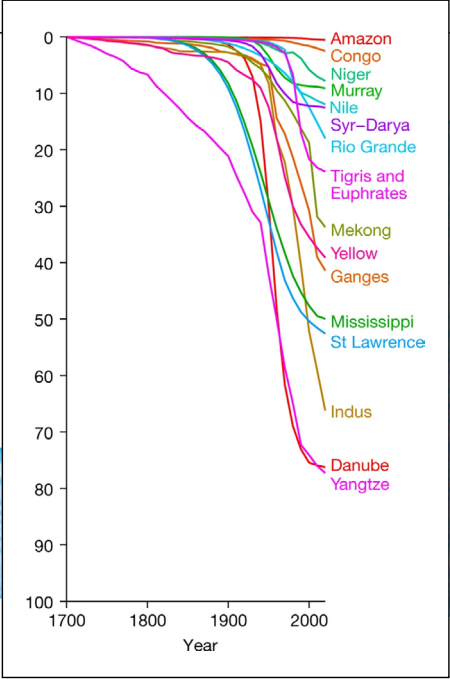


Figure 1 Regional wetland loss in major river basins since 1700. Considerable wetland loss has been recorded for several large river catchments in arid climates, e.g., for the Indus, Tigris and Euphrat, Syr-Darja, Nile, and the Niger river. These catchments partially include peatlands [4].

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