

# Statement to Mark the 50<sup>th</sup> Anniversary of the Convention on Wetlands 2<sup>nd</sup> February 2021

## Paradox Lost: Let's Recognize the Value of Wetlands in Drylands

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Every February, World Wetlands Day (WWD) is held to raise awareness about the vital role of wetlands for people and the planet. [Wetlands deliver numerous ecosystem services](#), including water supply, food, climate change mitigation, wildlife habitat, and recreational opportunities. [WWD 2021](#) has added significance, for the day marks the 50<sup>th</sup> anniversary of the adoption of the Convention on Wetlands on 2<sup>nd</sup> February 1971 in Ramsar, Iran. Commonly referred to as the [Ramsar Convention](#), this is the only international convention dedicated to a specific ecosystem, though in reality wetlands cover an array of environments, including swamps, peat bogs, shallow lakes and estuaries. 171 countries are signatories to the Convention and more than 2400 wetlands are currently on the list of Wetlands of International Importance (the 'Ramsar list'), representing some 10-20% of the world's remaining wetlands and collectively covering an area larger than Mexico.

Inclusion of wetlands on the Ramsar list carries a governmental commitment to ensure their 'wise use' (e.g. maintenance of 'ecological character') but even these wetlands are not necessarily safe from degradation or loss. The [2018 Global Wetland Outlook](#) (GWO) highlighted that nearly 90% of the world's wetlands have been lost since 1700. The remaining wetlands are being lost three times faster than natural forests as a result of direct and indirect human impacts, including agricultural conversion, river flow regulation, groundwater abstraction, invasive species, and climate change. [Commenting on the GWO](#), Martha Rojas Urrego, Secretary General of the Convention on Wetlands, referred to a 'slow awakening to the value of wetlands'. Our contention is that this 'awakening' needs wider consideration of the seemingly contradictory category of 'wetlands in drylands', especially in light of the World Wide Fund For Nature (WWF) [Living Planet Report 2020](#) that highlights the catastrophic decline of freshwater ecosystems globally.

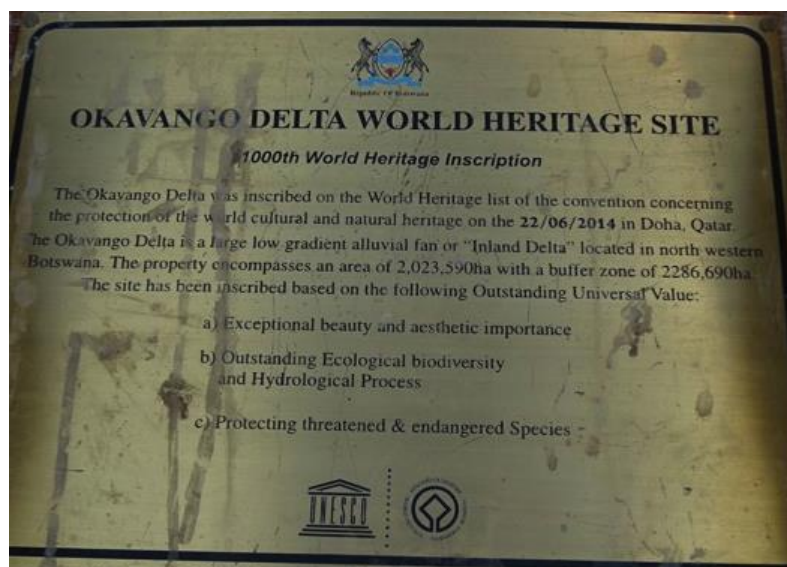
### *Wetlands in drylands*

Within the growing interest in wetlands, wetlands in drylands represent both a paradox and a blind spot. Drylands are regions where annual potential evaporation exceeds annual precipitation: hyperarid, arid, semiarid, and dry subhumid settings. Warm drylands (i.e. excluding polar deserts) cover about [40% of the Earth's surface](#) and aridity would not seem favourable for wetland development. Yet, crucially, about 28% of this dryland area overlaps with [inland water systems: rivers and wetlands](#). This overlap yields various wetlands in drylands, including marshes, swamps, floodplains, pans, and oases (Figure 1). Flooding or soil saturation results from one or more water sources (rainfall, river flooding, groundwater supply) and may be permanent, seasonal, or only temporary (ephemeral). These landscapes and ecosystems can defy the rule of local aridity by serving as repositories of water, biodiversity, and other ecosystem services, including in [poorer world regions with limited alternative resources](#).



**Figure 1** Contrasting examples of wetlands in drylands: top left) small seeps fed by groundwater in the Atacama Desert, Chile; top right) floodplain wetlands of the Chobe River, Botswana; bottom left) riverine woodlands and reedswamps in the Macquarie Marshes, Australia; bottom right) periodically flooded salt lake in northeast Spain.

Some wetlands in drylands are famous. Between the Garden of Eden (aka the Mesopotamian Marshes) and the Nile River floodplain and delta, [modern human civilisation was forged around wetlands in drylands](#). Many of these wetlands have been lost or damaged through human activities (e.g. drainage, river damming) but [restoration efforts are underway](#). Other notable wetlands in drylands include the Ramsar-listed Okavango Delta, the [1000<sup>th</sup> UNESCO World Heritage Site](#) (Figure 2) and [one of the planet's last remaining wilderness areas](#), although this too is threatened by human activities such as hydropower development and [fracking](#).



**Figure 2** Signboard in the Okavango Delta outlining the reasons for the inclusion of this iconic wetland in dryland as a World Heritage site.

But for every famous example, there are thousands of underappreciated wetlands in drylands, and many others remain unidentified and unmapped. Challenges arise because many wetlands may be very small and/or temporary features, only supporting wet environments for a few months following good rains that may occur years or even decades apart. Depending on the scale and timing of scientific surveys, such wetlands in drylands may be missed. In addition, despite increasing awareness of the specialised ‘boom-and-bust’ ecosystems that are adapted to occasional wet pulses, such environments may be overlooked simply because they do not meet common conceptions of wetlands as more-or-less permanently wet environments. In fact, these wetlands are so understudied that we are in danger of losing them [before we even realise their presence](#) and understand their full value.

### *The importance of wetland dynamism*

The natural hydrological, geomorphological, and ecological dynamism exhibited by wetlands in drylands is central to their value. Wetlands are changeable and adaptable, and as such are an [important line of defence against our rapidly changing climate](#) and [critical for sustaining biodiversity](#). Part of the way forward must be through expanding our understanding of wetland geomorphology – the earth surface processes that give rise to wetlands and help maintain them – and by [improving communication of this understanding between wetland scientists, managers, landowners and policy makers](#). Scientific or management mindsets that view wetlands as static, largely unchanging features need adjustment. All wetlands are prone to change over time as a result of altering patterns of water, sediment and nutrient supply, as well as ecological processes such as succession. Some of the most challenging management scenarios involve rivers that shift their course and thus affect wetland health and distribution; for example, the [historical and longer-term development of the Ramsar-listed Macquarie Marshes](#), Australia (Figure 1). These changes create a mosaic of subenvironments with different landforms, inundation regimes and soil types, and so promote biodiversity and a wide range of ecosystem services that cannot always be accommodated by maintaining static conservation reserves. Management plans have to take account of the [dynamic, sometimes shifting nature of wetlands](#).

### *Positive signs*

The situation is challenging but not all negative. An awakening to the value of wetlands in drylands forms part of a wider awareness of the [contribution of temporary water bodies to the health of larger drainage networks](#) in various climatic settings. Legislative changes sometimes work counter to scientific and management trends – witness the Trump administration’s [roll back of federal protection for many smaller US wetlands and waterways](#) – but such changes only stress the importance of the long-standing Ramsar Convention. Despite some limitations, the Convention remains one of the best mechanisms for protecting and highlighting the value of wetlands, even though many wetlands in drylands still go under the radar. Encouragingly, [India has just added a high-altitude arid wetland to the Ramsar list](#) and hopefully other countries will follow suit. Nominating additional wetlands in drylands and developing management plans appropriate to ensure their continued ‘wise use’ will be of benefit to humankind.

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Footnote:

1. A short online article based around some of the ideas presented in this opinion piece was published in The Conversation on World Wetlands Day 2021:

<https://theconversation.com/paradox-lost-wetlands-can-form-in-deserts-but-we-need-to-find-and-protect-them-153546>

List of hyperlinks in order of insertion:

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<https://www.worldwetlandsday.org/>

<https://www.ramsar.org/>

<https://www.global-wetland-outlook.ramsar.org/>

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<https://www.unep-wcmc.org/resources-and-data/global-drylands--a-un-system-wide-response>

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<https://link.springer.com/article/10.1007/s10750-016-3007-0>

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<https://www.ramsar.org/news/india-adds-a-high-altitude-wetland-complex-to-the-ramsar-list>