What's a wetland? - definition and types

Summary

This fact file provides a definition of the term 'wetland' and describes some of the main types of global wetlands.

So what's a wetland?

Wetlands are places where land and water meets. The RAMSAR convention, an international convention concerning wetland conservation, defines wetlands as:

- "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres".

- The RAMSAR Convention is the name of the International Convention on Protection of Wetlands, particularly as waterfowl habitat. It was formed in 1971 by delegates who met at Ramsar, a town in Iran on the coast of the Caspian Sea. It is the only international treaty that seeks to conserve habitat rather than species. Over 100 countries have signed the Convention.

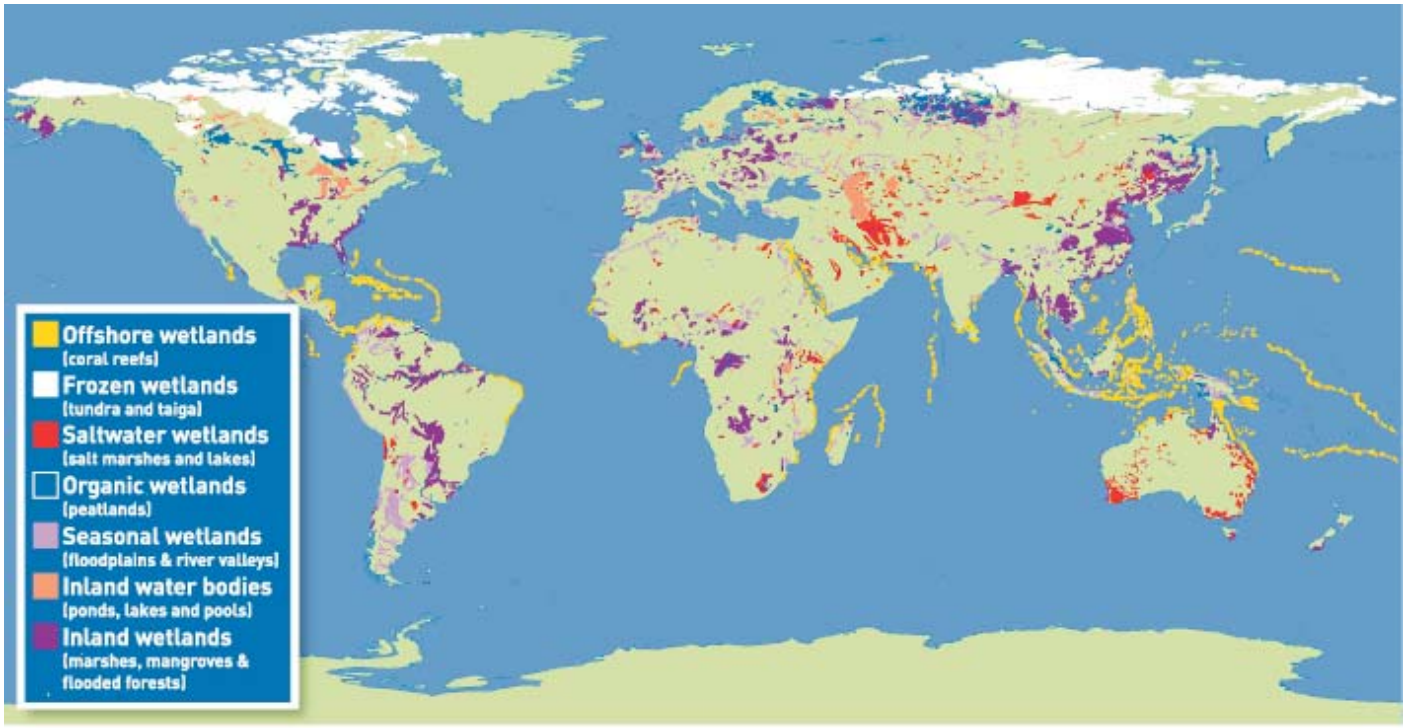
- Wetlands are, thus, transitional habitats between dry land and deep water. They include marshes, swamps, peatlands (including bogs and fens), flood meadows, lakes and ponds, rivers and streams, estuaries and other coastal waters (including salt marshes, mangroves and even coral reefs).

- About 3% of the Earth's surface is covered with wetlands and 75% of the human population lives in former wetlands and surrounding areas.

World wetlands

Classifying wetlands is difficult . Such places are highly dynamic, changing with the seasons and over time. Their precise boundaries are hard to define. One classification recognizes 30 natural wetland types and a further nine man-made ones.

There are two main types of world wetlands: those found inland with freshwater, and those on the coast with salty (marine or brackish) water.



Examples of world wetland types include:

Arctic tundra

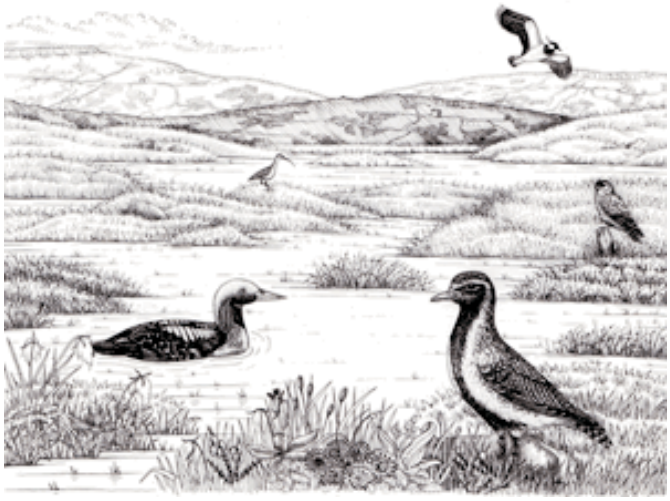
Arctic tundra pools - The Arctic tundra is a bleak place with frozen soil (permafrost) and few, stunted trees. When the winter ice thaws, boggy wetlands are created for the short summer of prolific growth which provide food and shelter for migratory wildfowl like Bewick's Swan on the Siberian tundra.
Tundra species range from midges, mayfies and mosquitoes, to Arctic Foxes, Snowy Owls, Polar Bears, Musk Ox and divers. All must cope with extreme cold and lack of light for most of the year.

Adaptations include : migrating, hibernating, remaining dormant, and sophisticated physiology (including networks of tiny blood vessels around extremities like feet and noses to warm the blood, and 'antifreeze' glycerol -type compounds in the blood).

Northern peat bogs - Peat bogs occur in moist climates where organic matter has accumulated over long periods. They are acidic and low in nutrients. Water and nutrient input are entirely through precipitation.

Peat bogs are typically dominated by Sphagnum moss. Other species include dragonflies and carnivorous plants like sundews.

Excellent examples of northern peat bogs can be found in Ireland.



Peat bog

Pools and ponds in northern forests

Northern Eurasian boreal forests or taiga are named after 'Boreas', the Greek god of wind. Long, cold winters are followed by short, warm summers when diving ducks like Smew and Goosander nest in tree holes left by Black Woodpeckers.

At the far east of the habitat zone, these coniferous forests are home to one of the world centres of diversity for salmon species and Brown Bear (in Kamchatka), and the last wild populations of Siberian Tiger and Amur Leopard (in the Russian far east).

Northern Taiga

Many open pools in North American broad-leaved forests are created by Beaver activity.
Tree-nesting ducks here include Carolinas, Hooded Mergansers and Buffleheads, the latter so-called because the male's head resembles that of a male bison.

Floodplains

Okavango floodplain

Floodplains are periodically flooded areas along rivers or lakes. Global examples include the Okavango of Botswana, Africa; the Pantanal and Amazon basins in South America, and the Mekong Delta in south-east Asia.

Millions of people depend on fertile floodplains for grazing, livestock and fishing. In Africa, seasonal floods enriching the soil have been celebrated since the Ancient Egyptians.

The Pantanal of Brazil, Paraguay and Bolivia, is one of the world's largest marshy floodplains - only slightly smaller than the United Kingdom in area. Species found there include Comb Ducks (males have a big, fleshy knob on the bill that enlarges during the breeding season), Coscoroba Swans (the world's smallest swan), Anacondas (the world's heaviest snake) and Capybaras (the world's largest rodent - a Guinea pig as big as a sheep).

Tropical peat swamp forest

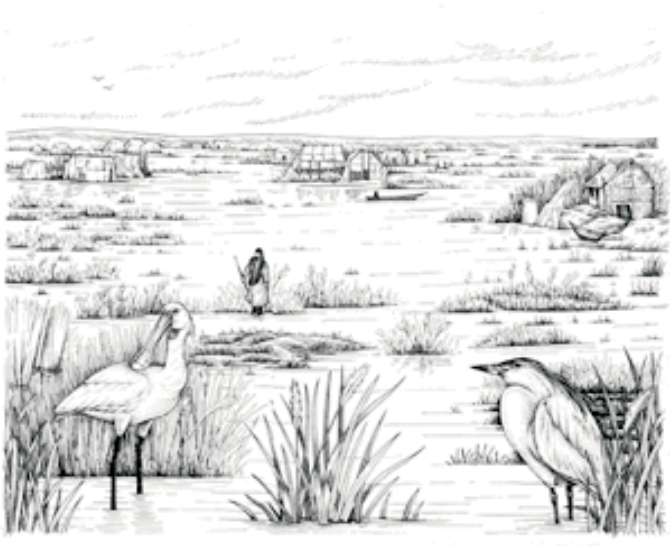
Tropical peat swamp

Parts of Indonesia and Malaysia are covered with hot, steaming forests where leaf litter and organic waste accumulate in peat layers 20 metres thick. This is home to a vast variety of species from Orang utans and Proboscis Monkeys to the rare Flying Frog and Asian Bonytongue or Arowana, a fish threatened by illegal capture for the aquarium trade.

Middle Eastern reed swamp

The most extensive Middle Eastern wetlands occur in Iraq, where the Tigris and Euphrates Rivers create a vast complex of shallow lakes, marshes and reed swamp, covering about 15,000 km².

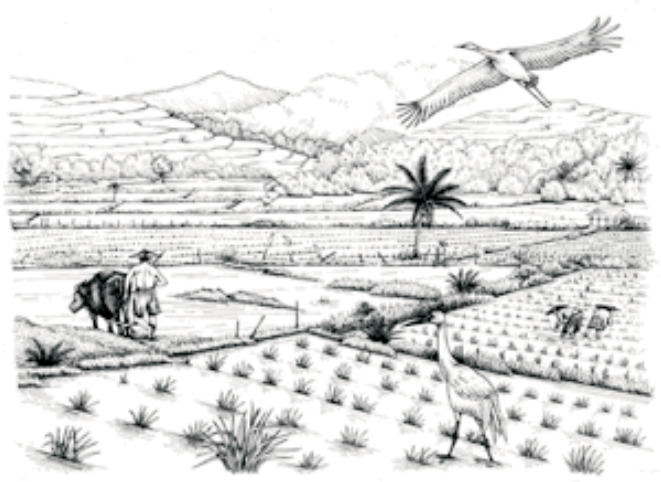
According to legend, the Garden of Eden was in this region, as was the cradle of civilization and agriculture. Today, the Marsh Arabs or Ma'dan od southern Iraq live similarly to the first farmers of 7,000 years ago. Some of the rarest Eurasian ducks, like Marbled Teal and White-headed Duck, live here.



Reed swamp

Rice Paddies

The world's oldest cultivated crop grows in vast flooded fields called rice paddies. Such areas, although man-made, are important wildlife habitats. East and south-east Asian rice paddies are home to everything from colourful Mandarin Ducks and Baikal Teals to migrating cranes and Asiatic Short-clawed Otters.



Rice paddy

Warm coastal wetlands

Islands like Australia, Hawaii and many in the Caribbean often have good examples of coastal wetlands from estuaries and salt marshes to mangroves and coral reefs.

Mangroves are a varied collection of trees and shrubs adapted to salty, inundated, intertidal environments. They are characterized by aerial prop roots. Mangroves trap sediment, stabilize shorelines, reduce coastal erosion by buffering the effects of waves and currents, supply products like fuelwood and charcoal to people, and serve as nurseries for a wide variety of fish, shellfish and bird species.

Mangrove swamp

Characteristic mangrove species include mudskippers and fiddler crabs.

Coral reefs are the marine equivalent of rainforests in terms of species diversity and productivity. These shallow, tropical marine ecosystems develop around the massive calcareous skeletal deposits of millions of corals - animals related to sea anemones.

The largest structure made by living creatures is a coral reef - the Great Barrier Reef, off Queensland, Australia (2027 km, 1260 miles long).

Fen, swamp or marsh?

Fens are peat-producing wetlands influenced by soil nutrients flowing through the system. They are generally more prolific than bogs and dominated by grasses and sedges with mosses. WWT Welney in Norfolk is a good example of fenland.

Swamps are normally forested wetlands on waterlogged or inundated soil where there is no peat accumulation. They are often formed when marshes are dominated by a single type of plant, such as reed, or particular types of tree. In Africa, there is probably more swamp than open water with famous stands of papyrus and reedswamp around the margins of lakes such as Lake Chad,

Reedbed

Navaisha, and George. In North America, wooded swamps, dominated by Bald Cypress, maples and willows, can be found. The larch-dominated swamps of northern Canada, known as 'muskeg' or 'drunken forests', create bizarre landscapes where the trees lean at precarious angles and move about on their watery carpet. In the UK, Alder and willow 'swamp' (or carr), can produce the same effect.

Marshes may be permanent or seasonal, freshwater or salty. They are normally dominated by grasses, sedges and/or reeds. Marshes are formed whenever groundwater, springs, streams or lakes cause frequent flooding. They can sometimes cover vast areas such as the Florida Everglades.

Further reading

Wetlands in Danger. P. Dugan (Mitchell Beazley/IUCN, 1993).

Wetlands. M. Finlayson and M. Moser (Facts on File, 1991).

Waterlogged Wealth. Why waste the world's wet places? E. Maltby (Earthscan, 1986).

Wetlands. P. Moore (Facts on File, 2001).

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