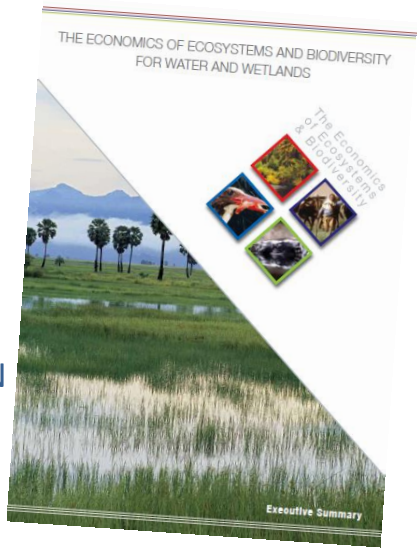

The importance and state of wetlands
&
global commitments for their wise use
Nick Davidson
Deputy Secretary General
Ramsar Convention on Wetlands
TEEB water and wetlands 'webinar'
12 December 2013
Ramsar

The Economics of Ecosystems and Biodiversity for Water and Wetlands

TEEB synthesis report 2013

Commissioned by
the **Ramsar Convention on Wetlands**

resourced by Norway, Switzerland, Finland & IUCN



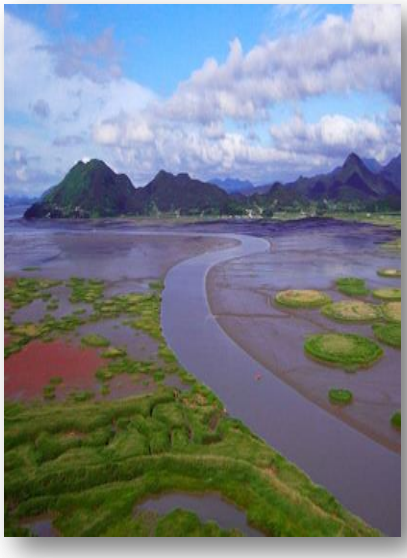
Why a 'Convention on Wetlands'?

- The Ramsar Convention was developed in the **1960s** because of **concerns over destruction of wetlands** and its impact on **both people and nature**
- Opened for signature in the city of Ramsar, I.R. Iran on 2 February 1971
- First of the modern global intergovernmental environmental agreements: now **168 Contracting Parties** (member governments)
- **all types of wetlands, from the mountains to the sea**: inland, coastal/marine and human-made

USSR A. FIROUZ (chair) S-AFRICA M.F.MÖRZER BRUIJNS G.MATTHEWS E. CARP

1971: The Ramsar Convention's text

- **Inspirational and far-sighted ...**
- Scope: **wetlands & water; ecosystems & people**
- Recognised:
  - "fundamental ecological functions of **wetlands as regulators of water regimes and as habitats**"
  - "resource of **great economic, cultural, scientific, and recreational value**, the loss of which would be irreparable"
- "Goal": "***stem** *the progressive encroachment on and loss of wetlands now and in the future***"



* to "restrain or stop"

1971: The Convention's text

Three 'pillars' of implementation:

1. **"wise use"** (=sustainable use) **of all wetlands**
2. **Designation & management of Wetlands of International Importance (Ramsar Sites) to maintain their *ecological character***
3. **International cooperation**

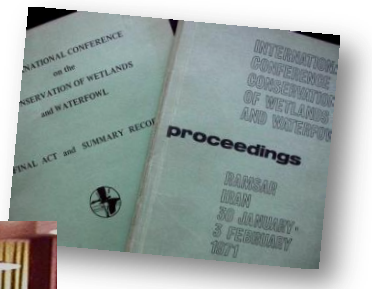


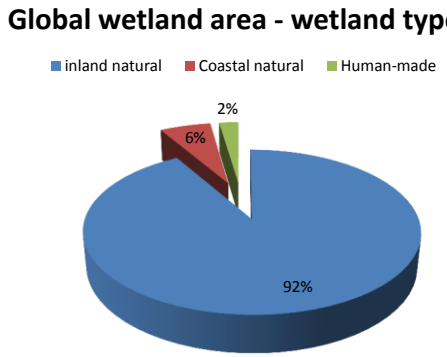
Photo: E. Kuijken

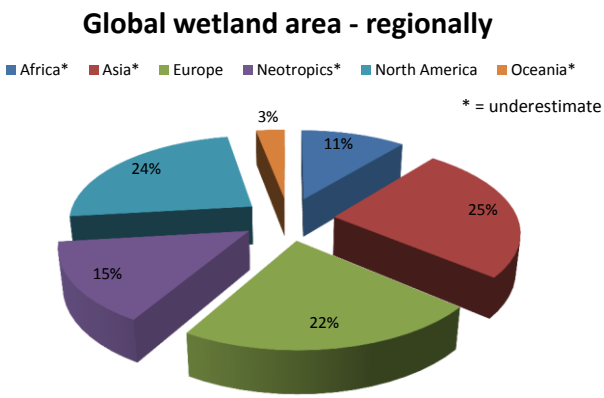
Wise use of wetlands is ...

- *the maintenance of their ecological character,*
- *achieved through the implementation of ecosystem approaches,*
- *within the context of sustainable development*

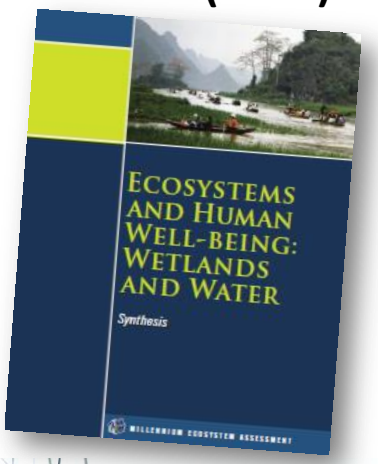
Where are the world's wetlands?

- At least 13 Million hectares of coastal and inland wetlands worldwide - but an underestimate ...





MA (2005): importance of multiple benefits from different wetlands



Mangroves – major importance:

- Food: fisheries, fish nursery areas
- Timber: fuelwood
- Climate regulation – carbon storage
- Pollution control
- Storm protection
- Biodiversity

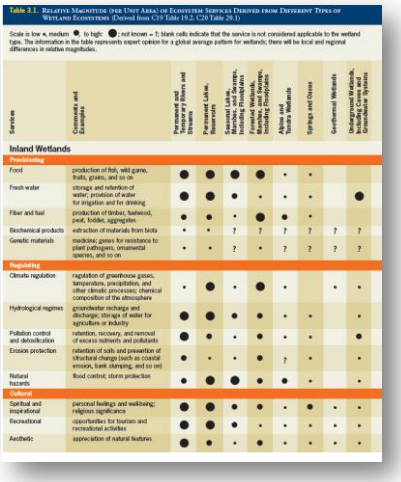


Table 3.1. Relative Magnitude (per Unit Area) of Ecosystem Services Derived from Different Types of Wetland Ecosystems (Derived from CTP Table 19.2, CTP Table 20.1)

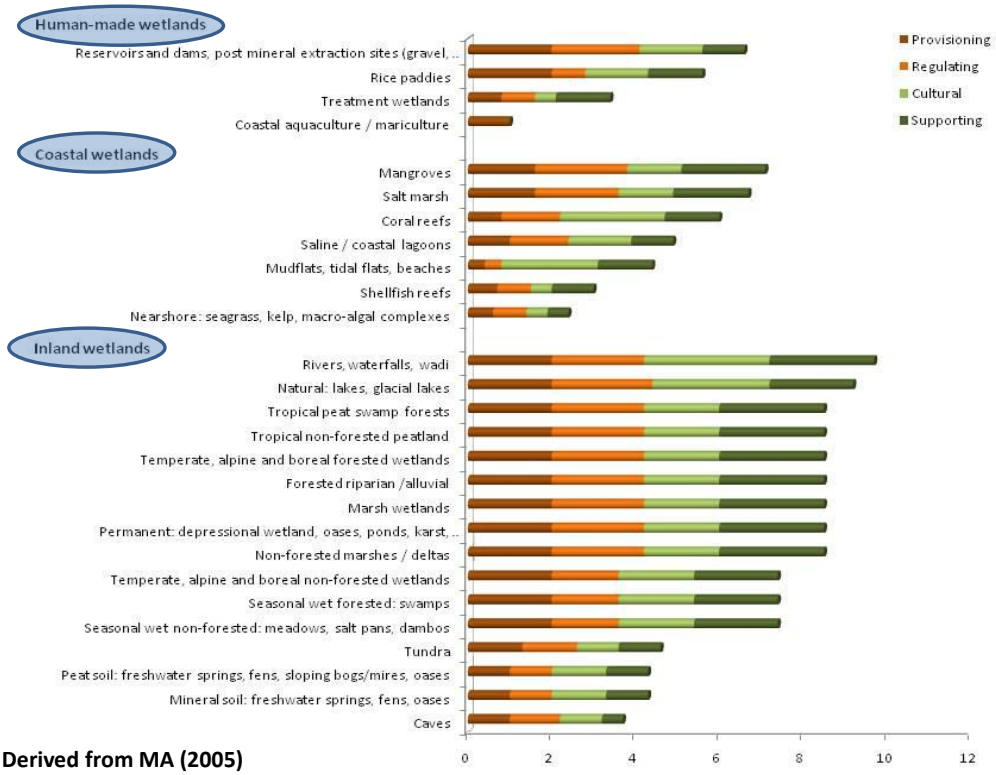
Scale is low •, medium ●, to high ⬤; not known –?; blank cells indicate that the service is not considered applicable to the wetland type. The information in the table represents expert opinion for a global average pattern for wetlands; there will be local and regional differences in relative magnitudes.

Services	Comments and Examples	Permanent and Seasonal Rivers and Streams	Permanent Lakes, Reservoirs	Seasonal Lake, Reservoirs, including Floodplains	Permanent Marshes and Swamps, including Floodplains	Seasonal/ Intermittent Marshes and Swamps, including Floodplains	Alkaline Wetlands	Springs and Oases	Geothermal Wetlands	Underground Wetlands, including Caves and Groundwater Systems
Inland Wetlands										
Provisioning										
Food	production of fish, wild game, fruits, grains, and so on	⬤	⬤	⬤	⬤	•	•			
Fresh water	storage and retention of water; provision of water for irrigation and for drinking	⬤	⬤	•	•	•	•			⬤
Fiber and fuel	production of timber, fuelwood, peat, fodder, aggregates	•	•	•	⬤	•	•			
Biochemical products	extraction of materials from biota	•	•	?	?	?	?	?	?	
Genetic materials	medicine; genes for resistance to plant pathogens, ornamental species, and so on	•	•	?	•	?	?	?	?	
Regulating										
Climate regulation	regulation of greenhouse gases, temperature, precipitation, and other climatic processes; chemical composition of the atmosphere	•	⬤	•	⬤	•		•	•	
Hydrological regimes	groundwater recharge and discharge; storage of water for agriculture or industry	⬤	⬤	•	•	•	•			•
Pollution control and detoxification	retention, recovery, and removal of excess nutrients and pollutants	⬤	•	•	•	•	•			⬤
Erosion protection	retention of soils and prevention of structural change (such as coastal erosion, bank slumping, and so on)	•	•	•	•	?	•			•
Natural hazards	flood control; storm protection	•	⬤	⬤	•	⬤	•			•
Cultural										
Spiritual and inspirational	personal feelings and well-being; religious significance	⬤	⬤	•	•	•	⬤	•	•	
Recreational	opportunities for tourism and recreational activities	⬤	⬤	•	•	•	•	•	•	
Aesthetic	appreciation of natural features	⬤	•	•	•	•	•	•	•	

Lakes – major importance:

- Food: fish, wild game
- Storage & provision of freshwater
- Climate regulation
- Water storage; groundwater recharge
- Flood control
- Spiritual & recreational

Natural wetlands deliver high diversity & importance of benefits/services



Derived from MA (2005)

The economic values of wetlands

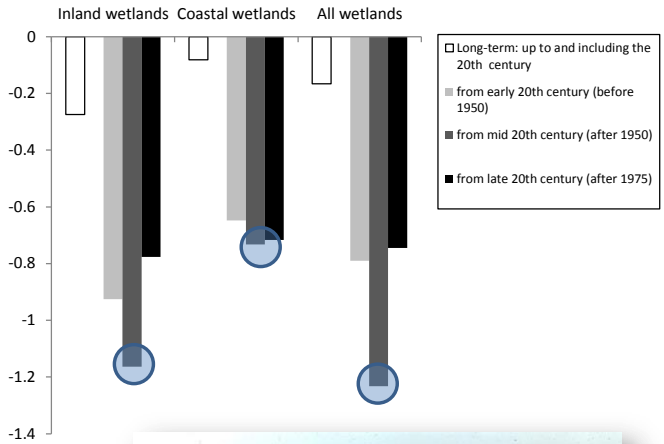
- Are very high compared with other systems
- Will be explained in the next presentation
  - by Patrick ten Brink

So, have we been maintaining our wetlands?

- Given their major range of benefits and big values to people and nature?
- Not enough ...
- **Historically**, we have drained and converted probably about **50%** of the original wetland resource, and
- In the **20th century**, possibly as much as **>80%** of wetlands remaining in 1900
  - And at much faster average rates than historically: **4x** for inland wetlands; **>8x** for coastal wetlands
- Wetland loss is continuing in the 21st century ...

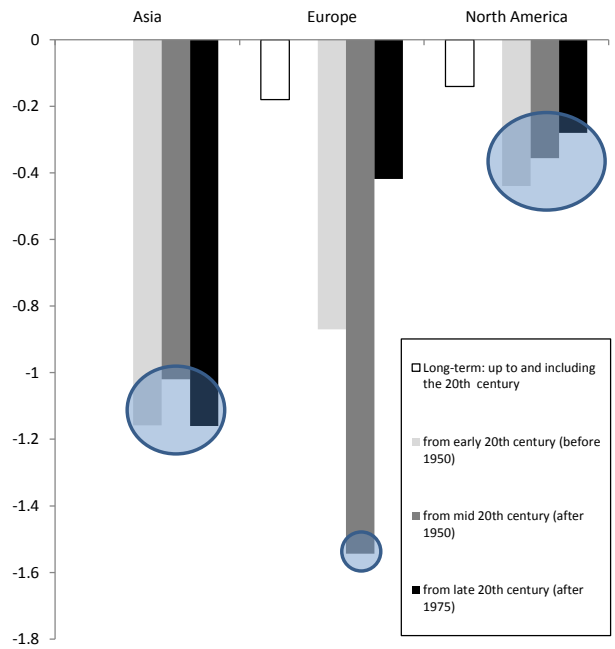
Long-term average wetland loss rates: wetland types

- Both inland and coastal wetlands
- Inland faster net loss than coastal
- Peak rates of net loss from the mid-20th century
- Globally slower since then

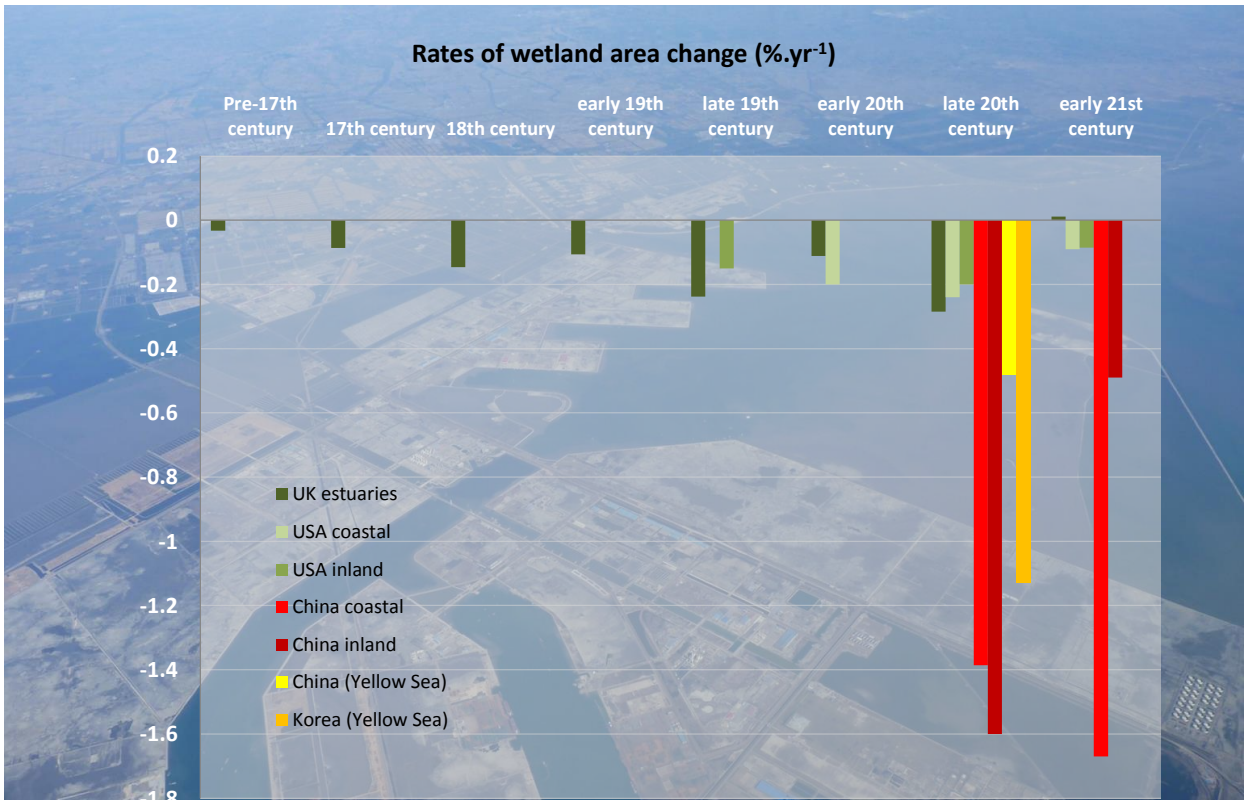


Long-term average wetland loss rates: regional differences

- Europe: very high 1950-1975; slower since
- North America: slower, and reducing
- Asia: high and continuing



Long-term rates of wetland change: UK/USA/E Asia

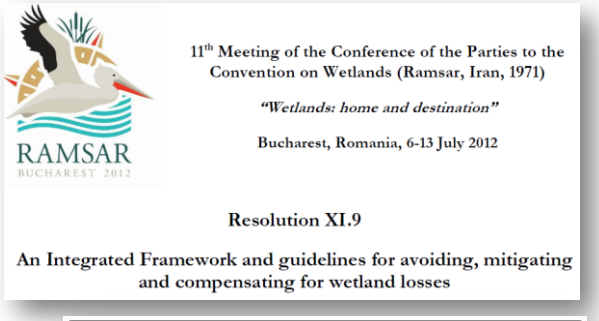


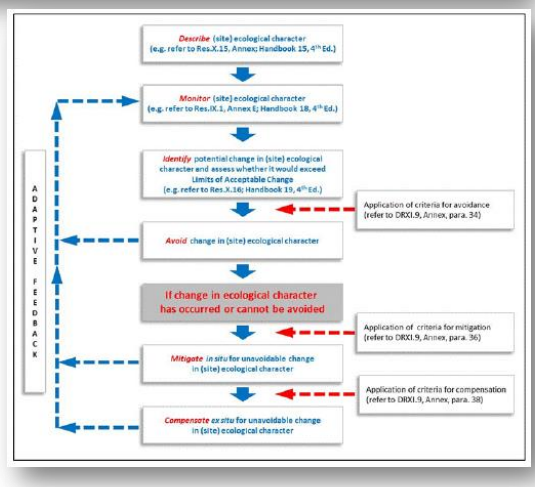
- Not yet globally achieved the Ramsar Convention's 1971 'goal' of stemming loss and degradation of wetlands
  - Despite the many wise use decisions, actions and successes worldwide
- Drivers of wetland loss and conversion continue:
  - Economic growth and meeting the needs of an increasing human population
  - Directly: wetland conversion to other land-uses e.g. croplands, urban and industrial
  - Indirectly: e.g. upstream water diversions and abstractions

- Need to get better recognition nationally, regionally and locally of:
  - **the full range and value of socio-economic benefits from wetlands**
- To support decision-makers in difficult decisions on trade-offs and implications of wetland land use and conversion

Supports implementing Ramsar commitments

- 2012 (Ramsar COP12) governments adopted consolidated guidance on the 'triage' of *avoiding, mitigating and compensating for wetland losses*
  - Reaffirms *'avoiding'* the as the primary step in strategies for stemming the loss of wetlands
  - Provides step-wise guidance for decision-makers
  - criteria for applying avoidance, mitigation and compensation
  - http://www.ramsar.org/pdf/cop11/res/cop11-res09-e.pdf





Yellow Water, Kakadu National Park Ramsar Site, Australia
Photo: Nick Davidson

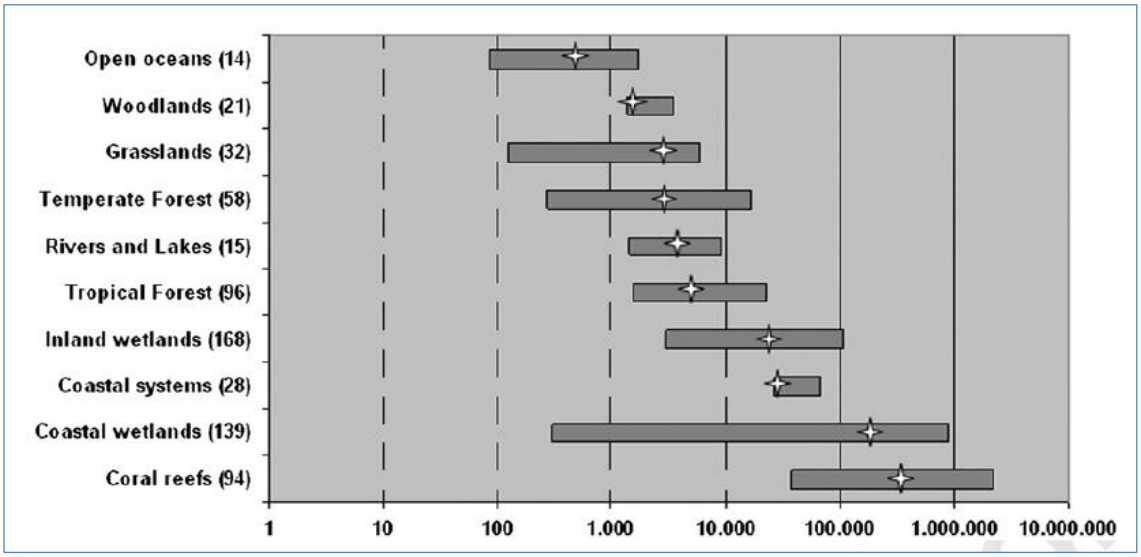
Refined in Danone Fund for Nature (2009) report

E. Ecosystem Services – Summary (average scores for each ecosystem service category)

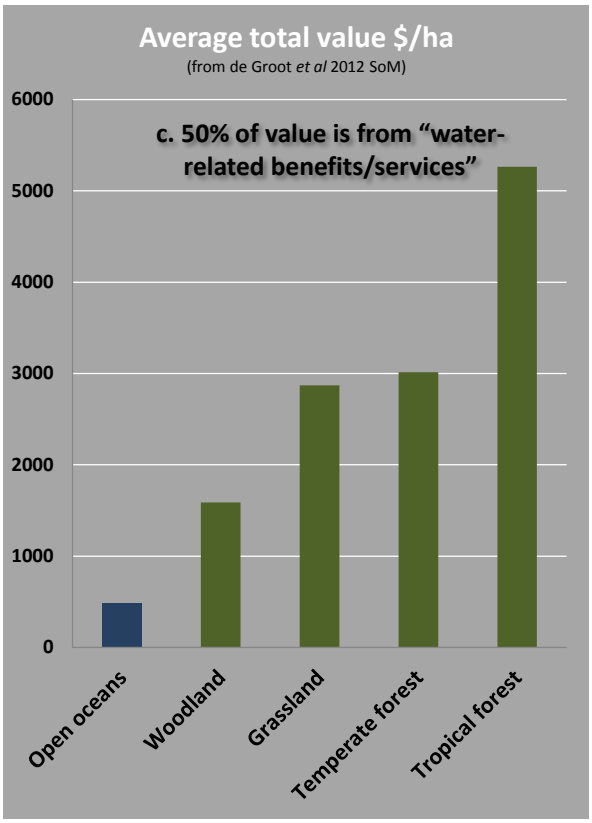
		Provisioning	Regulating	Cultural	Supporting
Riverine	River, waterfalls, wadi	2.0	2.2	3.0	2.5
	Forested riparian /alluvial	2.0	2.2	1.8	2.5
	Non-forested marshes / deltas	2.0	2.2	1.8	2.5
Mineral soil flats & Depressional	Permanent: depressional wetland, oases, ponds, karst, marshes, prairie pothole	2.0	2.2	1.8	2.5
	Seasonal wet non-forested: meadows, salt pans, dambos	2.0	1.6	1.8	2.0
	Seasonal wet forested: swamps	2.0	1.6	1.8	2.0
Organic soil flats	Temperate, alpine and boreal forested wetlands	2.0	2.2	1.8	2.5
	Temperate, alpine and boreal non-forested wetlands	2.0	1.6	1.8	2.0
	Tropical non-forested peatland	2.0	2.2	1.8	2.5
	Rice paddies	2.0	0.8	1.5	1.3
	Tundra	1.3	1.3	1.0	1.0
	Tropical peat swamp forests	2.0	2.2	1.8	2.5
Slope	Mineral soil: freshwater springs, fens, oases	1.0	1.0	1.3	1.0
	Peat soil: freshwater springs, fens, sloping bogs/mires, oases	1.0	1.0	1.3	1.0
Lacustrine	Natural: lakes, glacial lakes	2.0	2.4	2.8	2.0
	Human made: reservoirs and dams, post mineral extraction sites (gravel, mine), aquaculture ponds, treatment ponds	2.0	2.1	1.5	1.0
	Marsh wetlands	2.0	2.2	1.8	2.5
Estuarine & coastal fringe	Salt marsh	1.6	2.0	1.3	1.8
	Saline / coastal lagoons	1.0	1.4	1.5	1.0
	Mangroves	1.6	2.2	1.3	2.0
	Nearshore: seagrass, kelp, macro-algal complexes	0.6	0.8	0.5	0.5
	Coral reefs	0.8	1.4	2.5	1.3
	Shellfish reefs	0.7	0.8	0.5	1.0
	Mudflats, tidal flats, beaches	0.4	0.4	2.3	1.3
	Coastal aquaculture / mariculture	1.0	0.0	0.0	0.0
Other	Caves	1.0	1.2	1.0	0.5
	Treatment wetlands	0.8	0.8	0.5	1.3

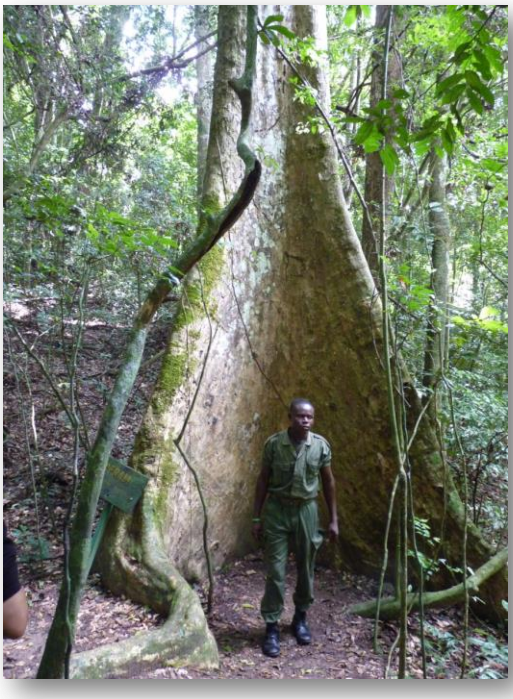
TEEB water and wetlands (2013): value of wetlands

Logarithmic scale: so each x-axis increment = 10-fold increase in value



TEEB: value of benefits from non-wetland biomes





We have under-valued our wetlands' importance ...

85-95% of value is from "water-related benefits/services"