

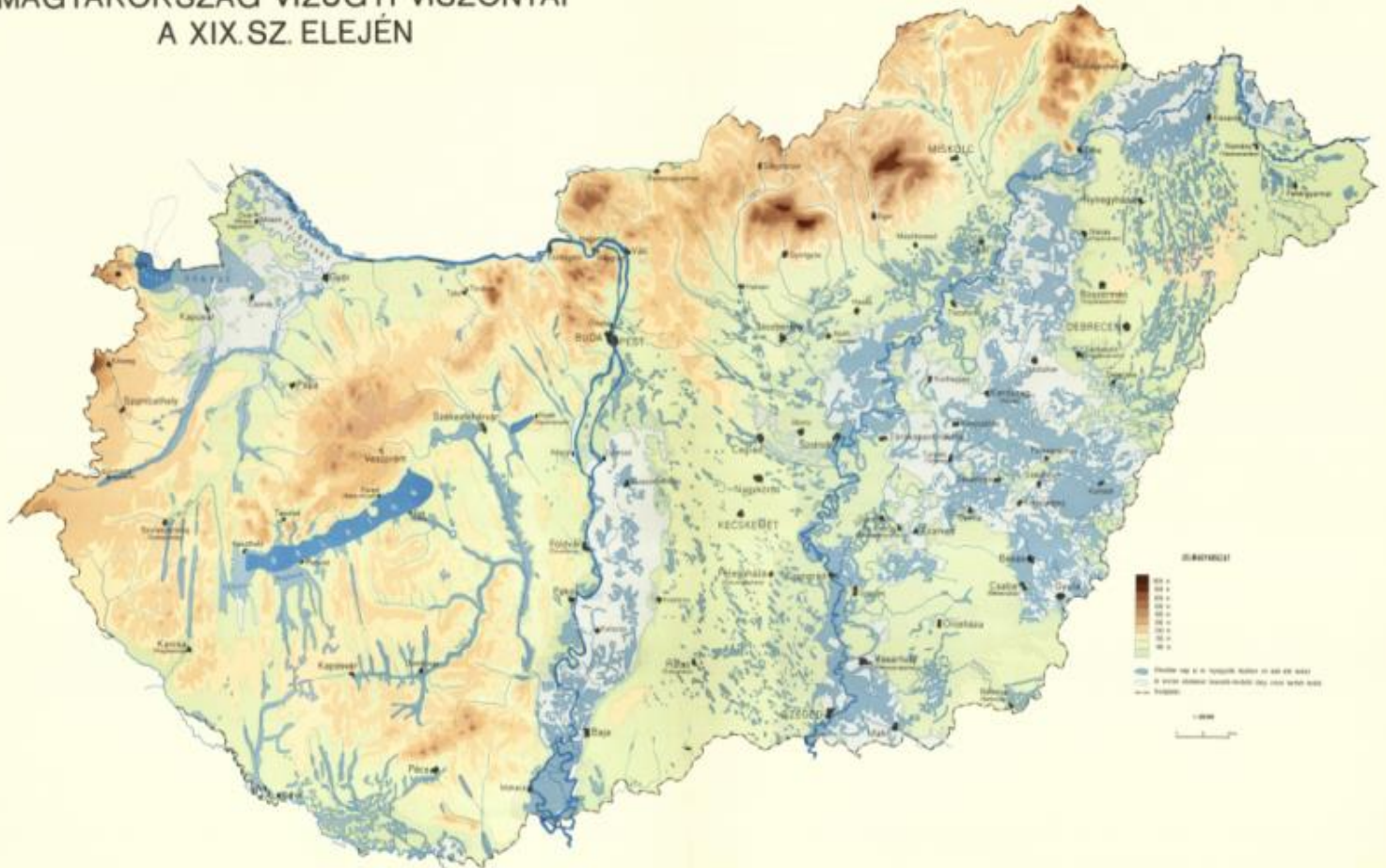
*Preliminary results of the  
peatland policy assessment: a  
CEE overview*

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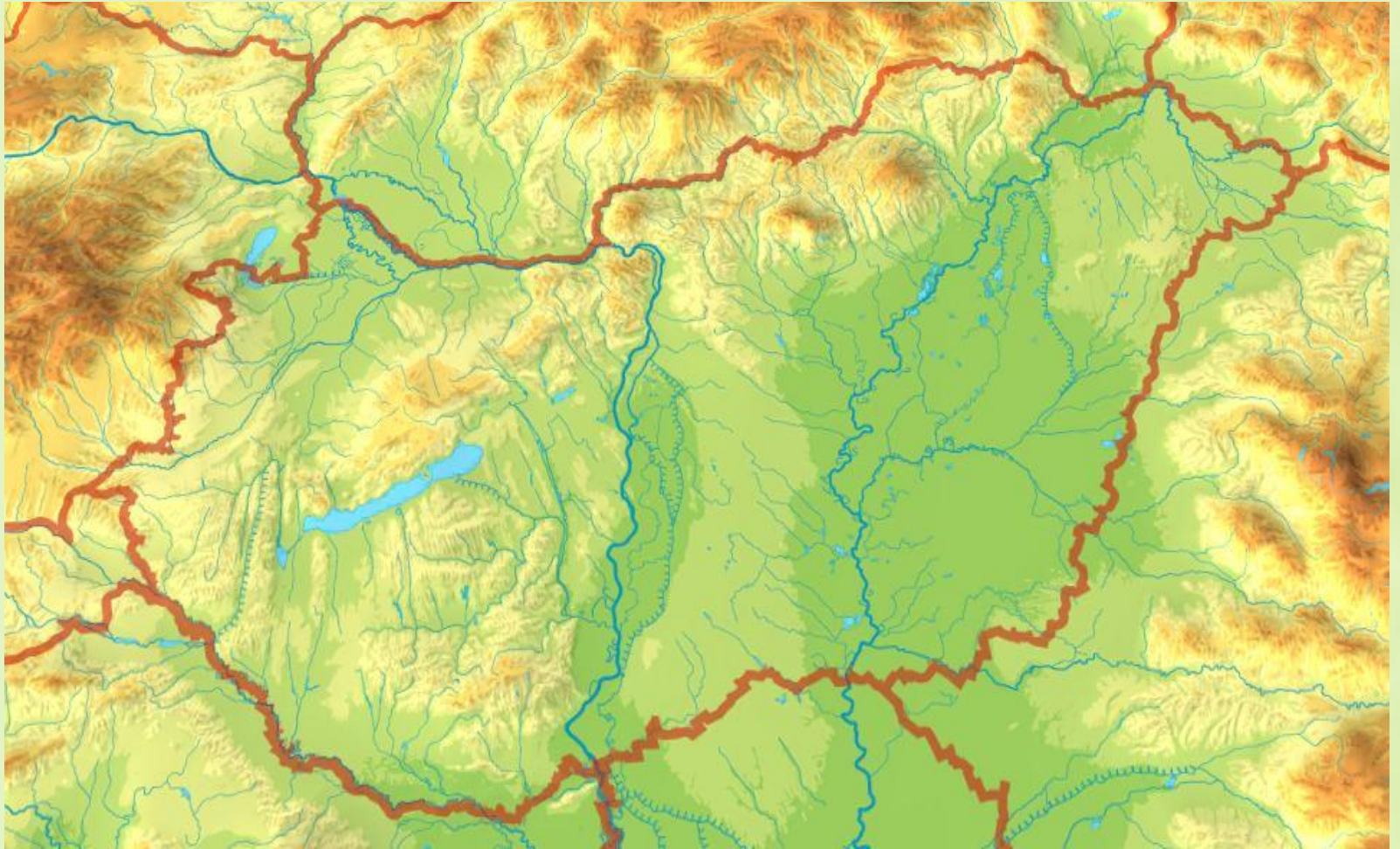
Tata CEEweb workshop 20 June 2023

# Natural water cover of Hungary 1810

MAGYARORSZÁG VÍZÜGYI VISZONYAI  
A XIX. SZ. ELEJÉN



# Natural water cover of Hungary 2023



# Peatlands in Hungary, European Mires Book – Hungarian part, p. 437

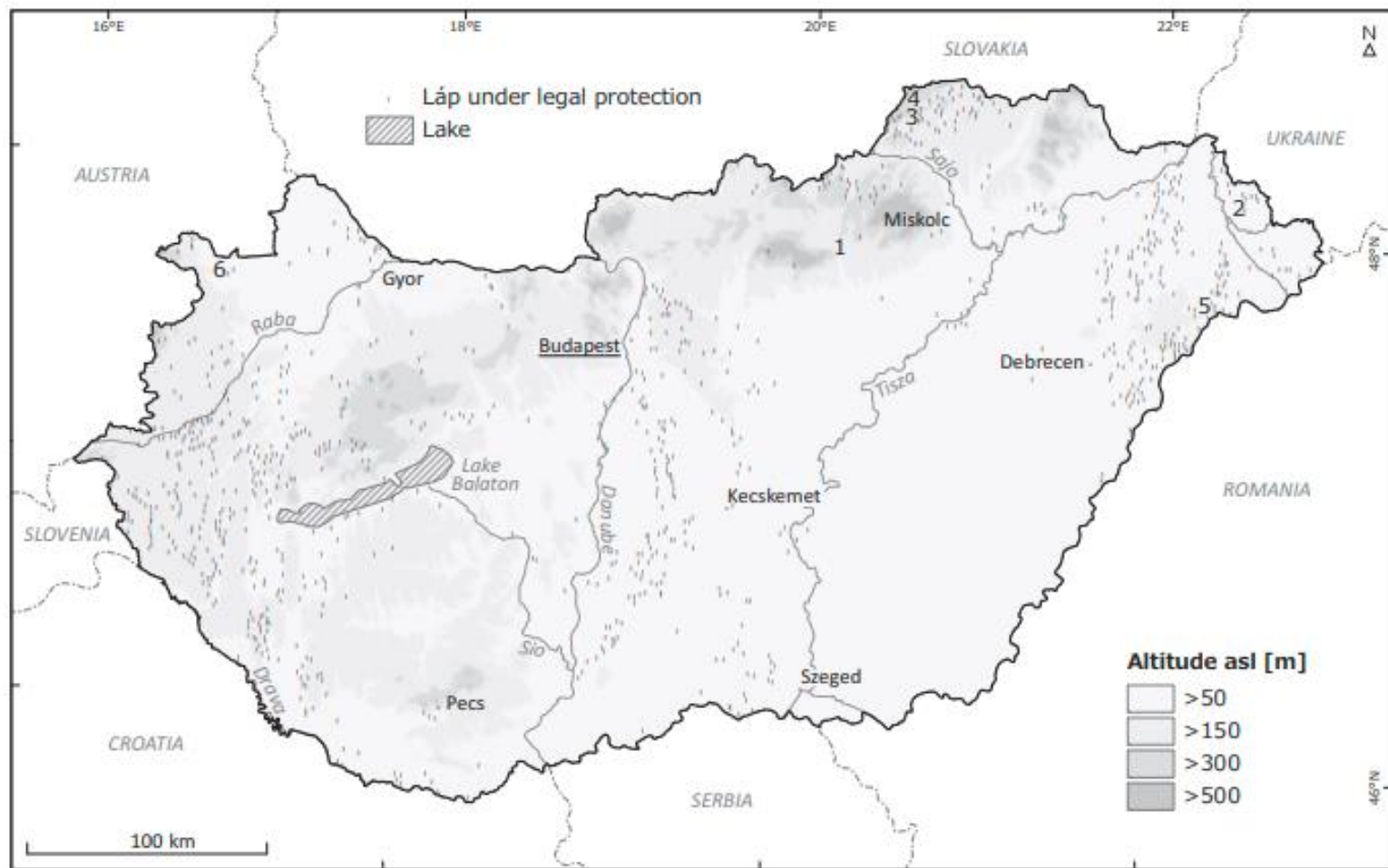


Fig. HUN-2: Distribution of ląd under legal protection (based on an inventory of the Ministry of Agriculture; Sulyok 2003) and location of peatland areas of international importance (1–6). 1=Nyíres-tó, 2=Báb-tava, 3=Kis-Mohos, 4=Nagy-Mohos, 5=Bátorliget Mire Reserve, 6=Hanság.

# Peatland and mire

- Peatland: Where waterlogged, partly decomposed plant material, peat has accumulated in situ (under low oxygen and nutrient levels)
- Mire: Wet area with peat forming vegetation (Sphagnum mosses, sedge or reed) and peat deposit

**Peat moss**  
**Sphagnum sp.**  
**Alps 1750 m**





Peat forming **sedge** *Eriophorum*



Peatlands are rich in **wilde Orchids**

Stadl an der Mur, Alps 1700 m, fotos by Balázs Jánossy

# Importance of peatlands 1.

Long term carbon storage and sequestration

- Optimally for thousands of years...
- Up to 25% of the world soil carbon pool
- 70% of all carbon stored in biotic systems

Peatlands as water storage sites

- Flood prevention
- Water purification by removing pollutants
- Prevent soil erosion
- Mitigation of droughts
- Water supply to people

# Importance of peatlands 2.

## High natural biodiversity

- Covering 1% of the whole Earth surface (some tropical areas included)
- Genetic richness, plant diversity
- Specialised insects to birds...
- Significant part of the global gene pool
- Rich ecosystem diversity and services
- Landscape diversity of temperate and boreal lowland



# Importance of peatlands 3.

## Peatland goods and ecosystem services

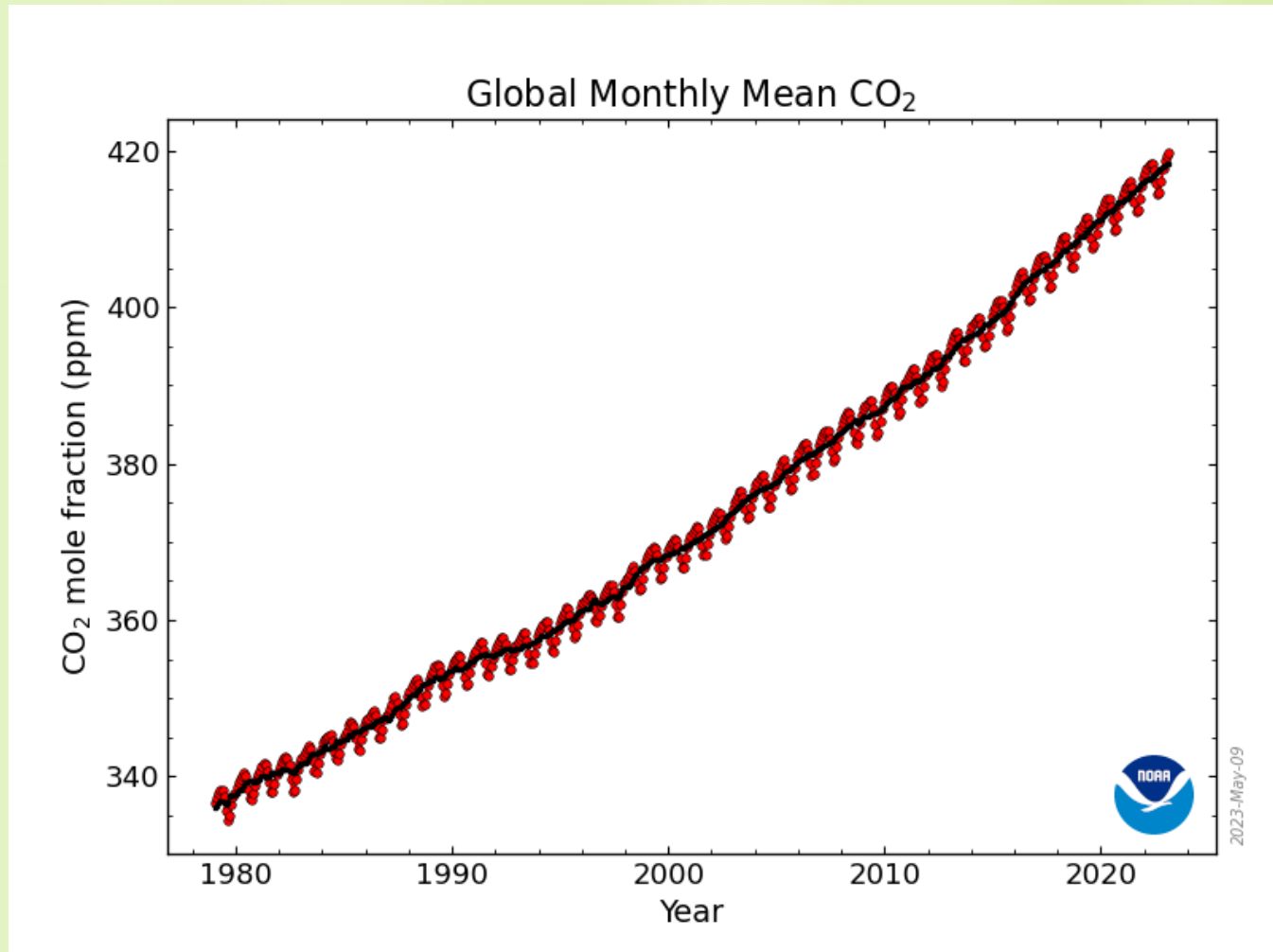
- For human societies
- For other ecosystems
- Maintaining human and animal food resources
- Collection of wilde plants for food or medicine
- Using drinking water of peatlands
- Sustainably harvested timber (but don't damage the ability of peat formation!)

## Education and research

- Pollen layers preserved for thousands of years
- Archeological remnants, even human bodies

# Global warming and peatlands 1.

Atmospheric CO<sub>2</sub> cc in 300 years from 280 ppm to 424 ppm now (May 2023, Mauna Loa Observatory, Hawaii)



# Global warming and peatlands 2.

Greenhouse effect of  $\text{CO}_2$  ( $\text{H}_2\text{O}$ , and to a lesser extent  $\text{CH}_4$ ,  $\text{N}_2\text{O}$ ,  $\text{SF}_6$ )

- From burning fossil fuels
- From destroyed peatlands
- Drained peatland slowly releases huge amount of  $\text{CO}_2$  by oxidation of dried peat
- Drained peat burns extra fast, impossible to extinguish (+ smoke public hurts alert)
- Gigatons of extra carbon release from peatlands accelerates global warming!

## **BUT:**

- Preserved peatlands with their wet microclimate **mitigate** global warming!
- Thickening peat binds and stores atmospheric  $\text{CO}_2$  **mitigating** global warming!

# Diversification and conservation value of peatlands

- Naturalness – free from human interference
- Diversity – rarity and representativeness
  - Rarity – threatened habitats and species, listed by international treaties and agreements
  - Representative sites can display the characteristic diversity and ecosystem functions

A peatland animal:

**alpine newt**

*(Ichthyosaura  
alpestris)*

Murau valley, Alps

Balazs Janossy



# What happened with the peatlands in Europe?

In 200-400 years 55-97% of peatlands disappeared!

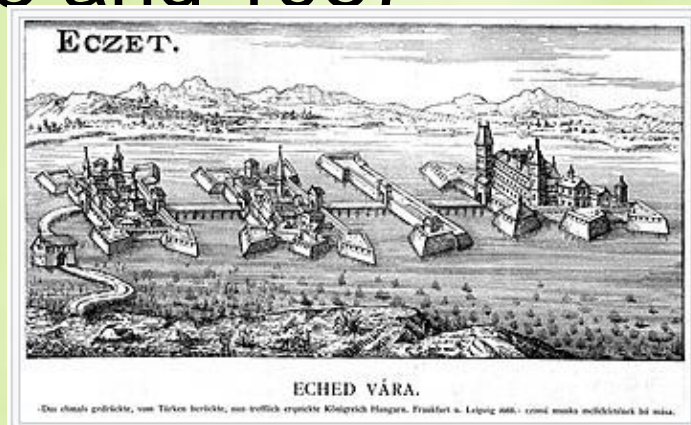
- Mostly drained for agriculture
- Or for overexploited pastures
- Built towns on them
- Peat mining for energy use (about 50%)
- Mining for horticulture (the other 50%)
- 120 000 ha peat mining in Europe now
- RPP („Responsibly Produced Peat”) certification system – the idea of Dutch peat traders to calm people!



# Hungarian peatlands

- At about 2 500 km<sup>2</sup> or more – around 1810.
- (In spite of the mostly continental climate of the Carpathian Basin!)
- The biggest peatland was Ecsedi-láp NE-Hu 436 km<sup>2</sup>, drained after 1751, the biggest peatfires occurred in 1863 and 1987

**Ecsed castle** built 1317-1329  
in the middle of the Ecsedi-láp,  
after draining  
no peat, no castle remained.



- Up to 97% Hungarian peat loss in 180 years, the worst in Europe

# What happened in Hungary?

- Drained to produce more arable land
- Peat mining for energy use
- Peat mining for horticulture
- Building up
- Becoming waste dumping sites
- Peatstock burning down after draining
- Etc.

## Peatland protection level in Hungary

All „láp”-s are legally protected in Hungary  
(Criteria to it: existing peat vegetation - peat moss, sedge, reed, cattails - and/or peat-forming process in progress)

High biodiversity, small remnant areas

Mostly ice-age relicts, **not to touch them!**

30% Natura 2000 sites or other legally protected areas, 1% bogs only


30 000 ha peatland (with  $\geq 30$  cm peat layer)

7 500 ha mire (peat forming vegetation, + some peat) remained distributed in tiny parts



# EU Acts and peatland protection

- EU Habitat Directive 1992
- EU Bird Directive 2009
  - + Natura 2000 Bird Habitats
- EU Water Framework Directive (WFD) 2000
- Earth's Crust Act 2005, 2017
- Land Improvement Act (LIA) 2003
- Water Act 1994
- Environmental Impact Assessment and Env. Management System Act (EIA) 2005
- Ramsar Convention – Wetlands of International Importance 1971



# Peatland protection levels/strategies in Central European countries 1.

Germany: Protection of peatlands for mitigating climate change

- Nature-Based Action Plan for Climate and Biodiversity 2022
- Climate Protection Program 2030
- National Peatland Strategy 2021
- CAP Germany
- Federal-country target agreement 2021 for climate prot. through peat soil protection

## National Peatland Strategy 2021 Germany:

92% drained, protection for the remaining peatlands,  
Natura2000 Habitat and Bird Directive

Regeneration, degraded peatlands flooding again with  
nutrient poor water, if it is possible

For mitigating climate change effects – C sequestration, wet  
microclimate, cooling and balancing

For preserving biodiversity, specialised plants, animals

For sustainable use (agriculture - Paludiculture, extensive  
grazing, innovative products, extensive forestry, solar parks  
on it...) Or not to use it for any purposes.

To improve CAP for better use - landowners get now financial  
support for cultivated **drained** peatlands! (= high GHG  
emission, harmful env. impacts, high economic costs)

Financial support only for peatpreserving methods from 2027

# National Peatland Strategy 2021 Germany

cont.:

Land consolidation is needed for regeneration of degraded peatlands

Increased risk of fire on drained peatlands in hot weather

Flooded peatland stabilizes groundwater table and the water balance (intensive precipitations/droughts) of the landscape

Minimise target conflicts of nature and climate protection (filling up with nutrition poor, slightly acidic water or any water which is available)

Peatlands used for agriculture are improved, but drained peatlands can locally lose their agricultural usability

Produce climate and biodiversity compatible new value chains in cascading use, for agriculture on flooded peatlands

Extensive forestry on peatlands

## National Peatland Strategy 2021 Germany cont.:

New recommendations and practices for forestry on peatlands

Water retention in summer draught, protection of drinking water

Stable groundwater level on catchment area of peatlands

To minimise N-content of water

Peat mining in Germany only on agricultural and drained peatland possible

In Baltic states mining is possible on highly natural peatlands too (Biodiversity loss, climate changes)

Peat mining by 2040 largely at a standstill

Increased substitution of peat with more climate-friendly alternatives in commercial horticulture

# Federal-country target agreement for climate protection through peat soil protection, Germany 2021:

Importance of peat soil protection in Paris convention climate protection plan 2050

To improve natural CO<sub>2</sub>-sinking capacity of forests and peat soils

Objective agreement for peatsoil protection, on the principle of voluntariness

Targets: 1 To keep peat containing soils in good condition (less GHG emission)

2. To raise groundwater level (on the whole catchment area), to preserve peat

3. Adaptation of the previous management to peatsoil protection and establishment of new type land use

# Peatland protection levels/strategies in Central European countries 6.

## Poland

- NECP 2021 2030 Poland
- Biodiversity National Programme Poland
- National Environmental Policy Poland 2030
- CAP Poland Strategic Plan
- OECD Env. Performance Review of Poland
- Strategy for Energy Security and Environment Poland

Peatland protection levels/strategies in Central European countries 7.

## CAP Poland Strategic Plan 2023

Hardly any peatland restoration, climate adaptation, biodiversity?

Carbon farming – most beneficial practices attractive for farmers

Eco – water retention, payment for flooding time...  $\geq 12$  days

Rewetting of peatlands for agricultural use – paludiculture, biodiversity

Rewetting of 4% Polish arable land would save 41% agri GHG emissions

But Polish CAP doesn't support peatland rewetting and paludiculture!

Grassland covered peatland drainage continued

Peatland restoration planned only after 2025, but ploughing, drainage allowed further on



## CAP Poland Strategic Plan 2023

No CAP support for rewetting, for blocking drainage ditches, for restoring wetlands puffer zones

(Polish farmers don't like excessively wet conditions, which could prevent degradation of peat)

Support for restoring peat bogs outside Nat2000 sites

But if mowing of too wet meadow is impossible, farmers have to pay back the support! This way peat draining is further supported...

Pesticides banned on restored areas

The Polish Strategic Plan is insufficient for several environmental and climatic targets

## Polish Wetland Strategy 2021

Renaturation of 85% of drained peat bogs are needed

to ensure water circulates in nature as long as possible and goes to the sea as late as possible...

Peatland protection levels/strategies in Central European countries 10.

## LIFE Peat Restore (LIFE15/CCM/DE0138) Poland report 2018

Peatlands 1.2 M ha, 92% fens, 4.7% raised bogs in Poland

Over 80% drained, peat accumulation happens on 16%

Restored peatland area 7500 ha only

EIA is obligatory before peat mining, deforestation of bog forests, new drainings, creation of new water basins or dams

Destruction and hydrological change of peatlands on protected areas are forbidden, **except on private grounds!**

Prohibition of destroying peatlands by forest management

No regulation for farmland-daining systems or ploughing on peatlands!

Peat mining requires mining consent, but after mining, land can be transformed to arable land, forest or water basin too.

Peatland protection levels/strategies in Central European countries 11.

## LIFE Peat Restore (LIFE15/CCM/DE0138)

### Poland report 2018

Among National Strategies:

Biodiversity Nat. Progr. 2015 Peatland habitats are crucial for biodiversity

Preparing protected areas management plans needed

In Wetland conservation Strategy 2006 – restoration of mires is forgotten

Strat. of sustainable development of rural areas 2012 – carbon accumulation in peatlands is ignored

Strat. Energetic Safety 2020 – peat (or biomass from peatlands) are not considered as energy source

Strategic plan of adaptation to climate change 2012-2030 – no peatlands-related measures except enhancing water retention

Peatland protection levels/strategies in Central European countries 12.

## LIFE Peat Restore (LIFE15/CCM/DE0138)

### Poland report 2018

#### National Strategies:

The legal framework seems to be appropriate, but in practice implementation gaps exist

Draining peatlands allowed by old ditches

Dispersed exploitation of small amounts of peat allowed

Peatlands are protected, except in „Projects of public interest”

Ineffective system of enforcing existing law and violations

Not stimulating restoration of peatlands, keeping only in degraded condition

Peatland functions in the landscape and ecological services not valued

In national strategic planning peatlands are not important as carbon storage, water retention and natural flood protection

# Peatland protection levels/strategies in Central European countries 13.

## Estonia

- **Nature Conservation Plan 2020**

Bogs 350 000 ha, 30% degraded

Restored mire habitats 10 000 ha by 2020

Preferring peat extraction from drained degraded areas only

Peat extraction and use in horticulture increasing

But peat is a non-renewable energy source

Limited amount of peat mined/year since 2015

After mining peat, the are has to be restored

Land Improvement Act allows peat drainage

# Peatland protection levels/strategies in Central European countries 14.

## Hungary

- Act on Nature Conservation 1996 LIII. tv. 23.§ (2) All peatlands-mires are protected in Hungary and (3) d) mire is a permanently water filled area with peat accumulation and/or mire vegetation on it.
- CAP Hungary – EU funding reserved for beneficial practices of farmers for the environment, development of wetlands and habitats, etc.

# Peatland protection levels/strategies in Central European countries 15.

Hungary: National Biodiversity Strategy 2015.

## 44/ Weaknesses

- dominance of short-term economic interests
- over medium and long-term environmental, social and economic interests
- - excessive use of the environmental systems
- - reduction, fragmentation, deterioration and shrinking of natural and semi-natural habitats
- (e.g., extensive grassland, wet habitats, forests on the Great Plain)



# Peatland protection levels/strategies in Central European countries 16.

Hungary: National Biodiversity Strategy 2015.  
44/ Weaknesses cont.

- shrinking of natural and semi-natural habitats
- (e.g., extensive grassland, wet habitats, forests on the Great Plain)
- economic activities, often ignoring ecological features
- extensive dissemination of invasive species

# Peatland protection levels/strategies in Central European countries 17.

Hungary: National Climate Change Strategy (NCCS) 2008-2025.

- Lower average precipitation (sinking water table of peatlands, more CO<sub>2</sub> /and CH<sub>4</sub>/ emission, more warming, more water sinking...)
- More extreme weather events (less water remains locally on peatlands, more running away suddenly)

# Peatland protection levels/strategies in Central European countries 18.

Hungary: National Climate Change Strategy (NCCS) 2008-2025. cont.

- Less emissions needed in energy sector (incl. peat burning), industry, transport, agriculture (incl. soil protection), waste management and household
- For adaptation to the elevation 2°C or more, structural changes are needed in water resources, wetlands, ecosystems and to restore biodiversity

# Peatland protection levels/strategies in Central European countries 19.

- Romania ?

# Peatland protection levels/strategies in Central European countries 20.

- EU Acts concerning peatland protection could be good examples, but not obligatory for non-member states of the EU

# What to do? 1.

- The momentary profit interest of peat extraction suppresses common sense long-term peatland protection, restoration and climate protection.
- The value of ecosystem services is not priced, lawyers and economists would only understand if they had good intentions...
- How many EUR would it cost, the sequestration of 50 tons of carbon in a 1 ha peatland? And the climate mitigating effect of peatlands? etc....

# What to do? 2.

- Don't drain any peat containing soils (to keep the carbon sequestered)!
- Avoid overusing peatlands in agriculture!
- Avoid incorporate peatlands for towns!
- Don't buy any peat for energy use (burning)!
- Don't buy any peat for horticultural use (replace it by other materials)!

# Thank you for your attention!



European common brown frog (*Rana temporaria*) at an Alpine peatland, foto Laszlo Janossy

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