

The state of Hungarian mires  
*Protection and management*

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# Mires in Hungary

- ❑ Unfavourable climatic conditions
- ❑ Originally mire-covered 1.1%
- ❑ 97% lost or damaged
- ❑ Since 1997 all remained mires are protected by law (some of them earlier, the Bátorliget mire since 1950)
- ❑ The protection is rather formal in most cases

# National mire survey

- Signed on map segments (1:25000)
- Unified data sheet, individual code
- County, settlement outskirts, name of territory, surveyor
- Protection status (before 1997)
- Mire types (natural or damaged), estimated area of each mire plant community

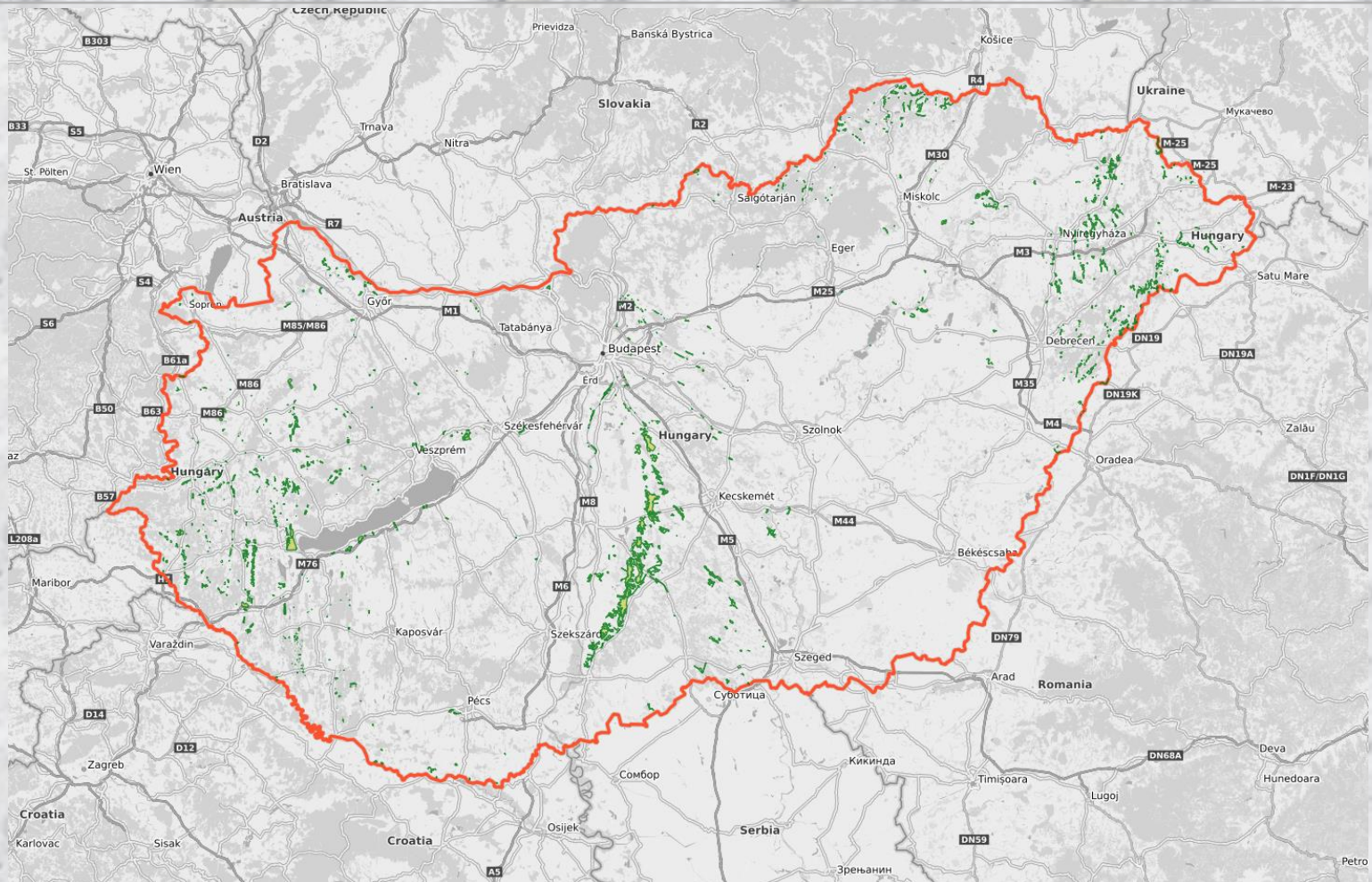
# National mire survey

- The following mire types were distinguished:
  - bogs with harestail cotton-grass
  - transition bogs with peat mosses
  - reed fens
  - tussock fens
  - 'tall herb fens'
  - spring mires
  - swamp forests and shrub swamps
  - others

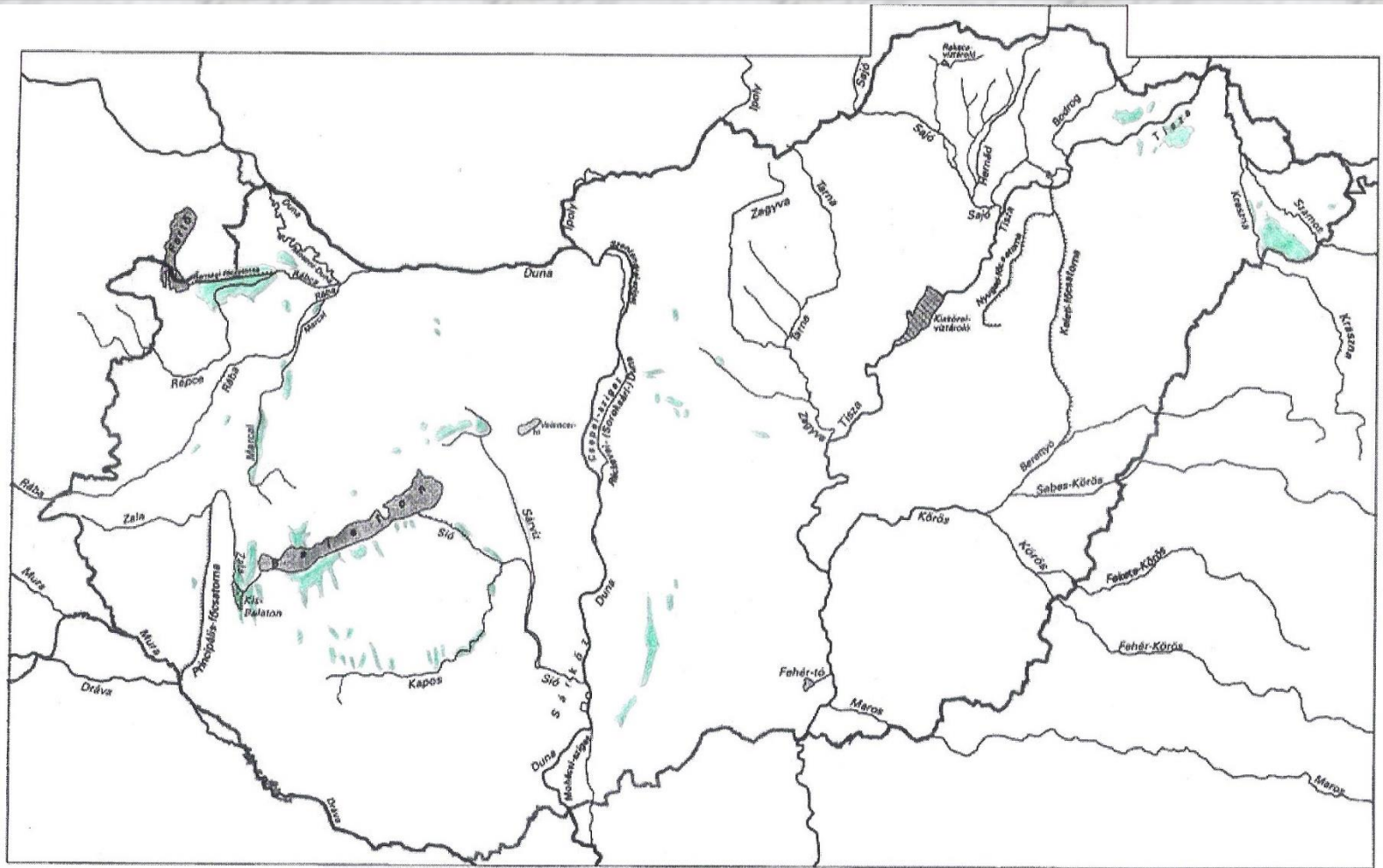
# National mire survey

- ❑ Other wetlands (if present)
- ❑ Endangering factors
- ❑ Characteristic, endangered, protected species were also indicated
- ❑ Did not include: peat deposits, details of hydrology, phytosociological surveys etc.
- ❑ 1193 items, very uneven quality.

# TIR ('NIS') map



# Peatlands suitable to exploitation, about 1900 (adapted from László G. 1905)





# Phytosociological survey

- Independently of the national mire survey, I studied several mires in various parts of the country, mainly by phytosociological methods. The results were published in 1998, *Lájer K.: Bevezetés a magyarországi lápok vegetáció-ökológiájába (Introduction to the vegetation-ecology of Hungarian mires)*, *Tilia* 6: 84-238.

# Mire types in Hungary

- 1. Minerotrophic
  - 1.1. Topogenous
    - - terrestrialization mires
  - 1.2. Fluviogenous
    - - inundation mires
  - 1.2. Soligenous
    - - spring mires
    - - mires with seeping water
- 2. Ombro-minerotrophic (very rare)

# Topogenous: *Caricetum elatae*



# Wetland with peat forming patches



# A habitat of *Aldrovanda vesiculosa*



# Caricetum elato-lasiocarpae (with *Pseudocalliergon lycopodioides*)



# Fenwood: Salici pentandrae- Betuletum pubescentis



# Fenwood: *Carici elongatae*- Alnetum





# *Urtica kioviensis* in a hollow of *Caricetum elatae*



# Soligeneous: fen meadow complex



# Soligenous: Seslerietum uliginosae



# Soligenous: *Juncetum subnodulosi*



Ombro-minerotrophous: part of a small bog. *Drosera rotundifolia*, *Sphagnum magellanicum*, *Polytrichum strictum*, *Eriophorum vaginatum*.



# Eriophorum vaginatum on an oligotrophic floating mire



# Floating mire with *Sphagno fallaci*-*Caricetum elatae*



# Oligotrophic patch with *Carex echinata* (very rare in Hungary)





# Phragmiti communi-Sphagnetum recurvi



# Betulo pubescenti-Sphagnetum recurvi



# Salici cinereae-Sphagnetum



# Carex rostrata on a mesotrophic mire



# Management problems

- ❑ Water supply inadequate (in space or time)
- ❑ Water quality inadequate
- ❑ Protection is rather formal in most cases (without even signs)
- ❑ Conversion to fishponds, arable lands, etc.
- ❑ Grazing
- ❑ Hunting (game lair)
- ❑ Dry or disturbed peat get weedy

# Mire damaged by disturbance and eutrophication, 2023



# Caricetum appropinquatae, 2012



# Management methods

- Hydrological control
  - Slowly rising water level is needed for peat accumulation
- Prevention of water pollution
- Prevention of disturbances (eg. by fences)
- Mowing
- Grazing is inadequate in most cases
- Monitoring



# Management methods

- Hydrological regulation is crucial also for mire restoration.
- Restoration may be doubtful, because mire development is a nonlinear process (multiple stable states, hysteresis). Always very slow, if ever possible.
- Therefore priority should be given to the preservation of functional peatlands.

# Water retaining, mowing



# Mire surrounded by fence



# Abandoned peat mine, regeneration



# Conclusions

- The mires remained in Hungary are now protected by law, but their long term state seems to be rather precarious.
- The country's climatic conditions are not really favourable to peat forming systems.
- Peat decomposition exacerbates these conditions, therefore it should be hindered as far as possible.

**Thank you for the attention**  
*(some cranberry as a reward)*

