Sustainable wetlands and agricuture

Csaba Vaszkó

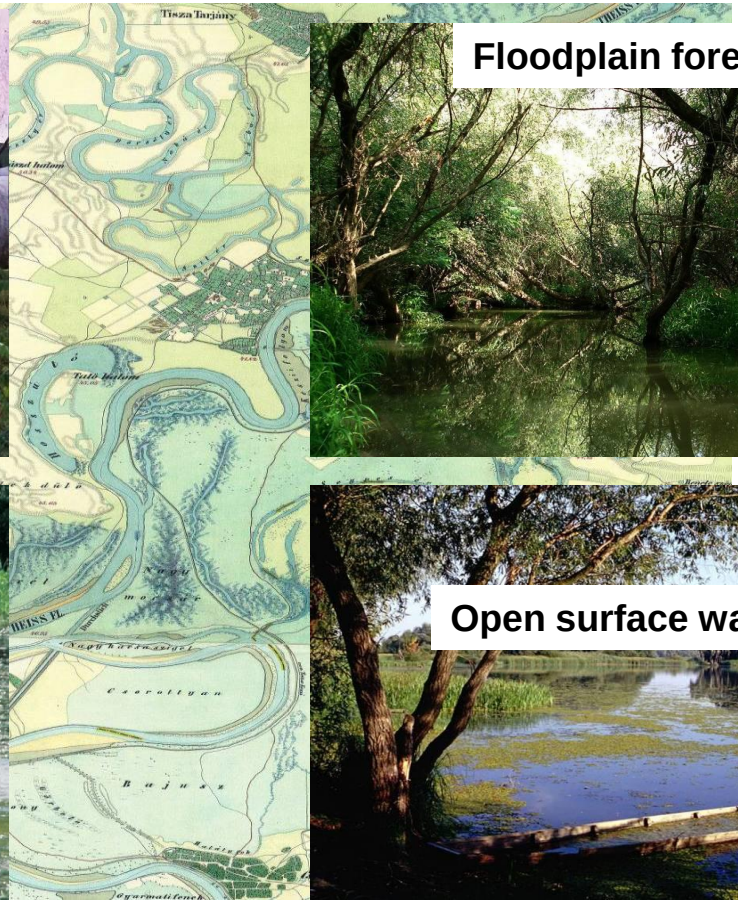
Greenstreams

Case Nr 1

Natural water retention in agricultural landscape

Hostorical landscape: more wetlands

Semi natural grassland management



Floodplain forests

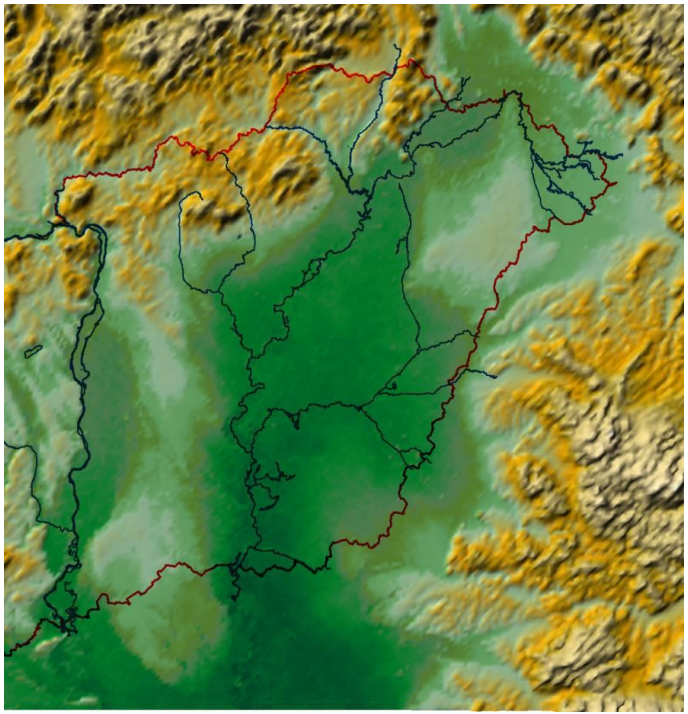
Wetland management (fishing, reed harvesting)

Open surface water

Majority of our wetlands has been lost

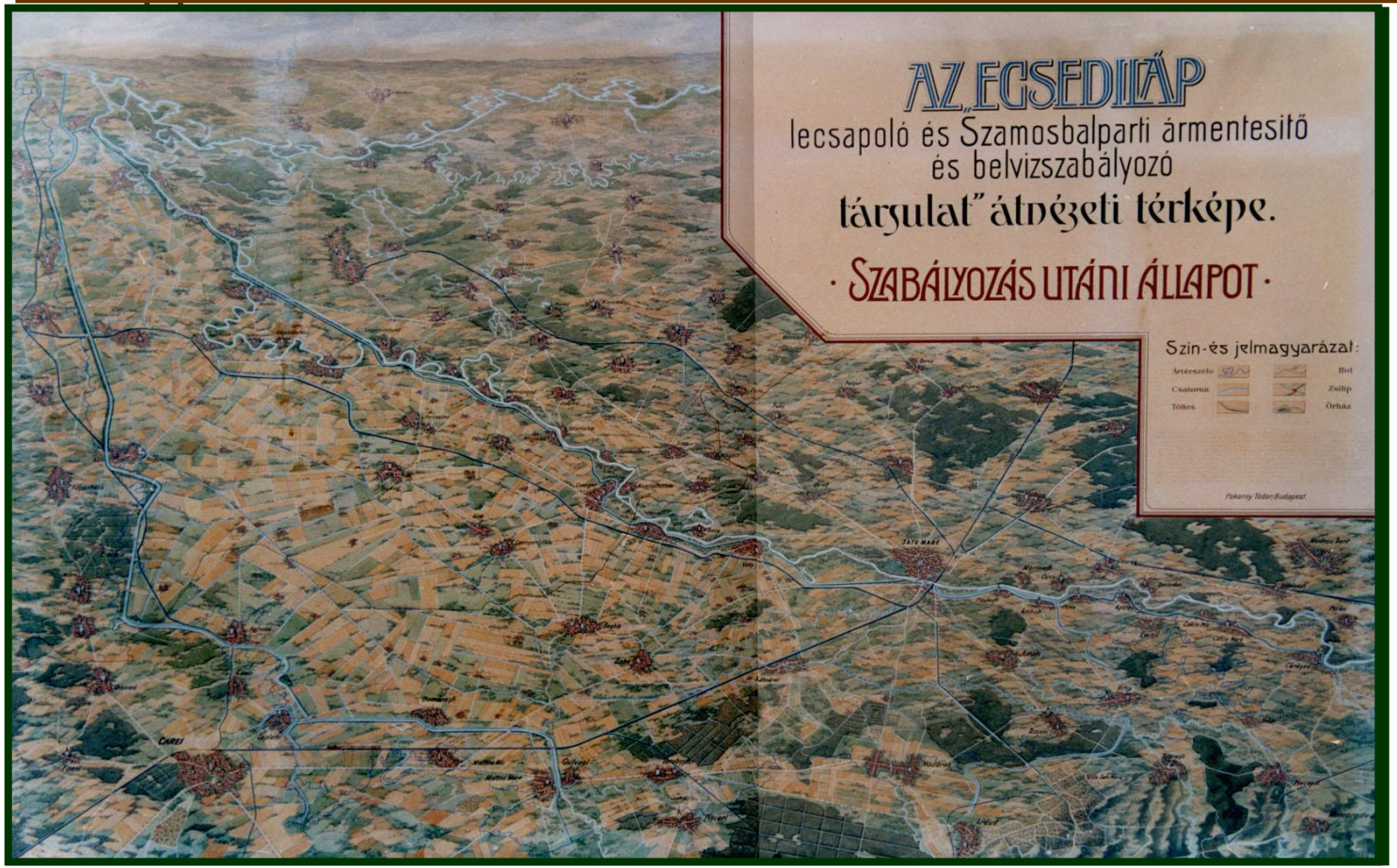
River regulation

Drainage of wetlands



Length of major river network reduced by ~50% - cutoffs
Area of floodplain reduced by 95% – k100 km of drainage channels, dykes

Landscape fragmentation > large wetlands completely disappeared



Water loss

Carbon loss

Increased erosion

Increased run-off

Decreased water retention capacity

Higher vunerability to floods and drughts

Biodiversity loss

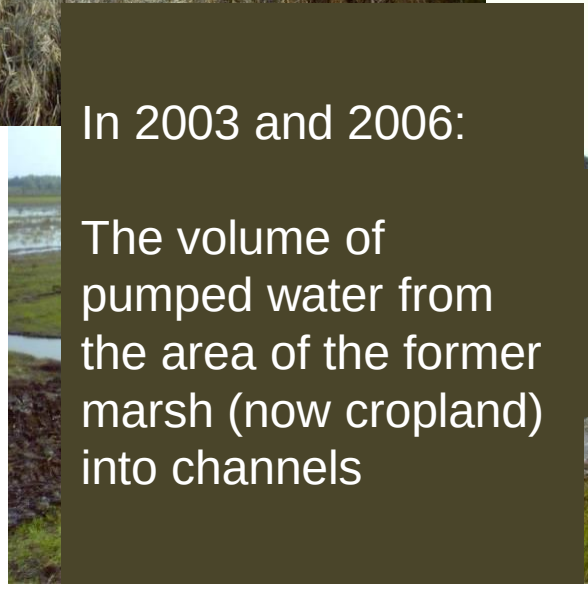
Inland (excess) inundation on crop(?)lands

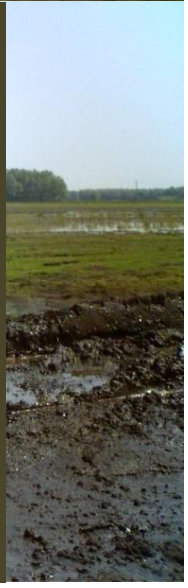
In 2003 and 2006:

The volume of pumped water from the area of the former marsh (now cropland) into channels

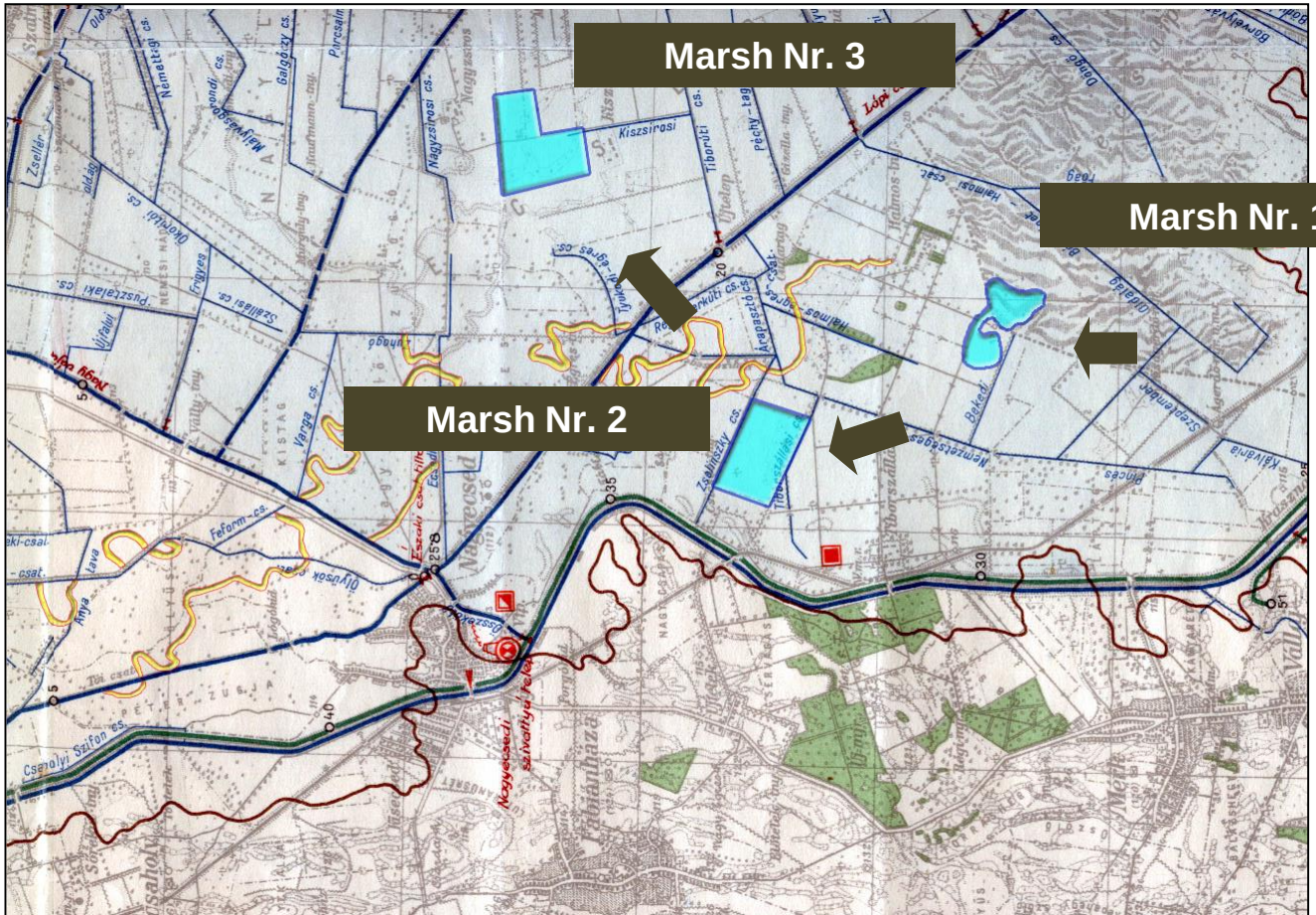
=

7 033 000 m^3





Water retention in former marshes, oxbows and depressions



Water retention in agriculture

Depressions

+

municipal channel network (50 000 km in total at national level

= 7 050 000 m³

+

Old (sedimented) river beds

Case Nr 2

Reduce flash flood risk through natural water retention

Go to the upper catchments > reduce flash flood risk

Extreme flash floods: 2007, 2008, 2011, 2014, 2017

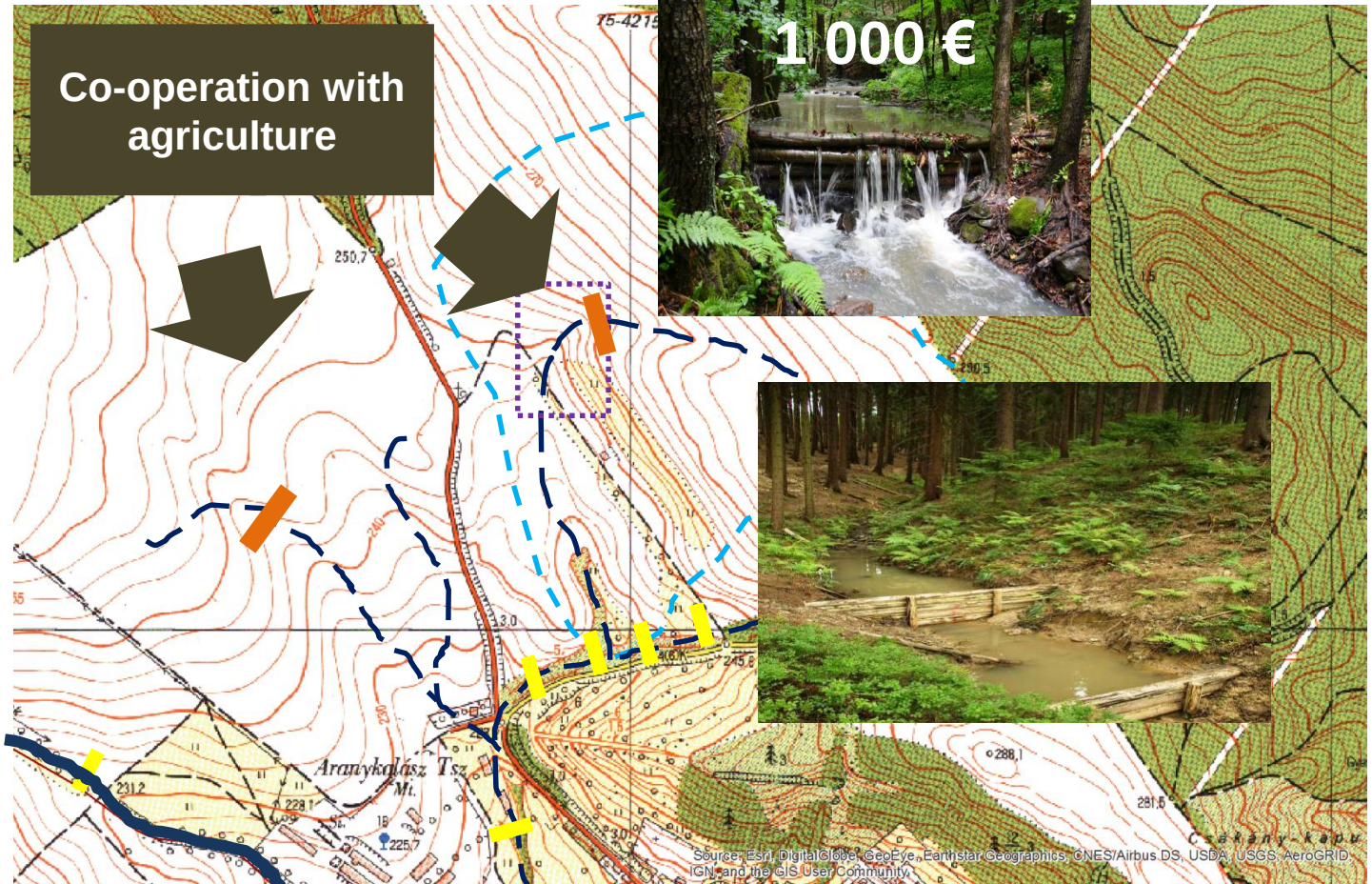
Reported damage in municipal properties: 160 000 €

Restoration works includes roads, bridges, buildings etc.

Soil erosion: 1 300m3 of sludge (per event)

Increased run-off due to intensive agriculture (water retention capacity)

Modify runoff, reduce flood risk and soil eriosion and improve biodiversity



Case Nr 3

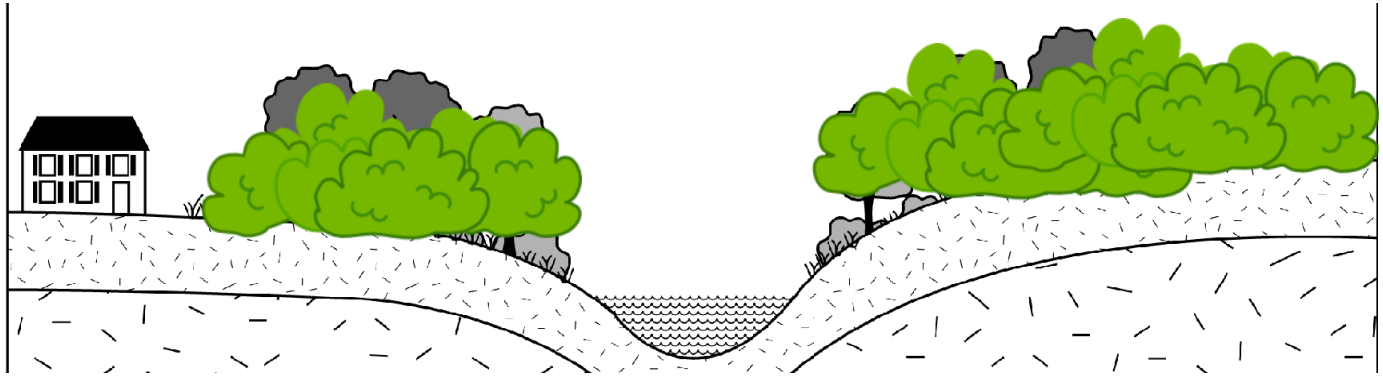
Floodplain management
Water-Energy-Agriculture

Rapid expansion of invasive shrubs in floodplains

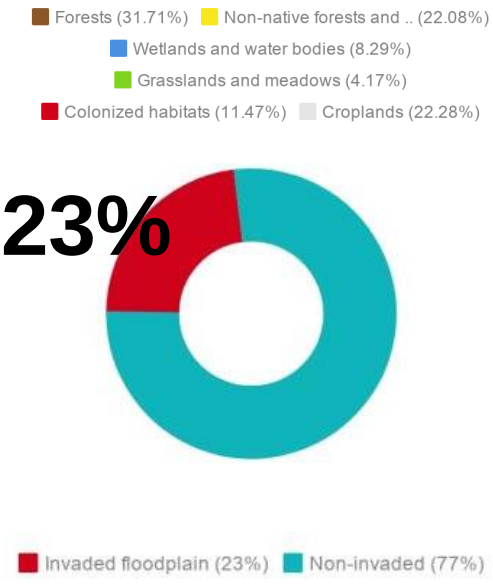
Biodiversity loss and fragmentation

Flood risk

High land use costs



23% of active floodpain is occupied by invasive shrubs



New land and water management

1) Eradicate Invasive Alien Shrubs

2) Semi natural grassland management and tourism

3) Energy useful native willow plantation

Things I’m focussing

Ownership (location of intervention; conflicts)

Market drivers (agriculture, energy)

Collaboration mechanisms (shared interests, win-win solutions)

Upscaling/Replication

Thank you very much!

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Multiple impacts

Reduced invasives results in better flood capacity and habitat quality on 110ha of floodplain.

Returned and re-introduced species:
White tailed eagle; black stork; kingfisher, water buffaloes, beavers, grey cattle

~1 600 tons of biomass produced from local sources.

The local municipality saved 30,000€ heating cost annually > co-finance building renovation projects

300,000m3 natural gas replaced annually

New income streams for 18 local families.