

Lowland wilderness

An aerial photograph of a vast, flat landscape. A winding river flows through the center, surrounded by lush green grass. In the background, a line of tall, golden-brown reeds or grasses stretches across the horizon under a blue sky with scattered white clouds.

The Pentezug Project

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www.hnp.hu

Mountains – potential for wilderness



What about the lowland?



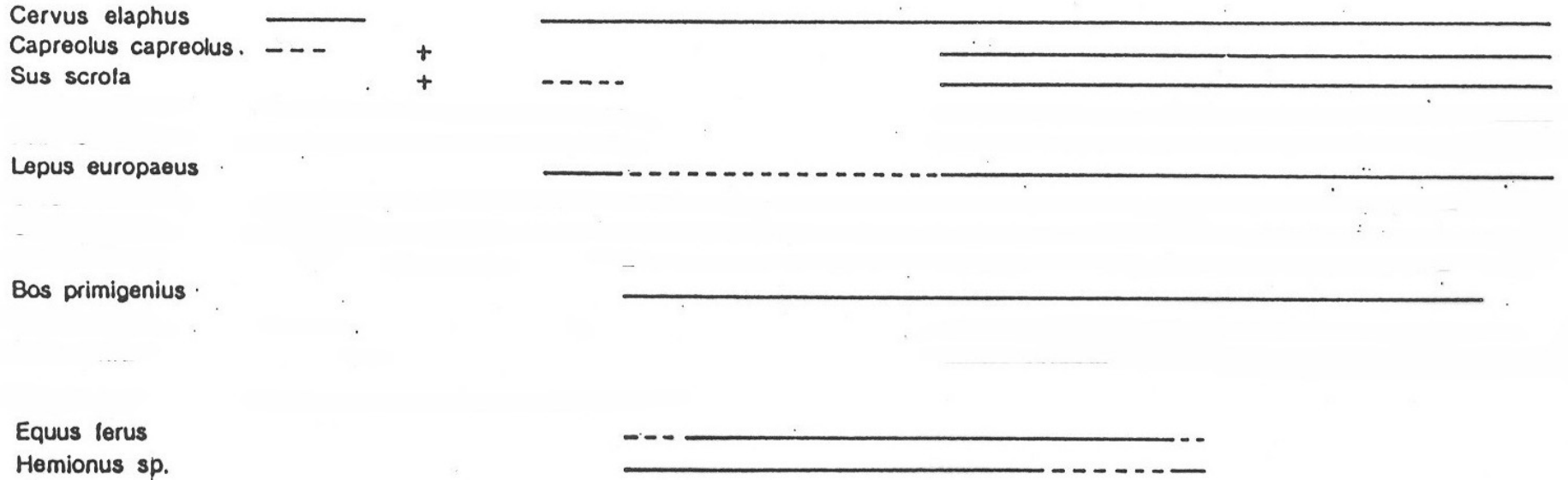
Hortobágy, the wet steppe of Europe



Landscape evolution

- ❑ at the end of the Pleistocene the taiga was directly replaced by wormwood (*Artemisia*) dominated steppe vegetation
- ❑ broad-leaved (oak-ash) forests on the banks of bigger water courses only
- ❑ results of pollen analytic studies of Hortobágy wetlands are comparable with those of Dalhai (Mongolia) and Pashennoe (Kazakhstan) Lakes
- ❑ archeological evidences on large herbivorous ungulates (wild horses, aurochs)

Large mammals of the Carpathian Basin in the Holocene



PILISSZÁNTÓ	BAJÓT		P A L Á N K			K Ö R Ö S		B Ü K K		ALFÖLD	
W - III.	DRYAS	ALLERÖD	PREBOREAL	BOREAL	ATLANTIC		SUB-BOREAL		SUB-ATLANTIC		
MAGDALENIEN	EPIPALEO		M E S O L I T H I C			NEOLITHIC		COPPER	BRONZE	IRON	ROM
BC	20000	15000	10000	8000	6000	3000	1000	0	1000	MIDDLE	

Zonation and fact sheet

Established: 1973 - 52 000 ha

Total area: 1999 - 80 000 ha

World Heritage site: 1999 – 75 000 ha

Biosphere reserve: 1979 – 52 000 ha

Ramsar site: 1976 – 30 000 ha

Major land cover categories:

Natural grassland – 54 000 ha

Restored grassland – 6000 ha

Natural wetland (incl. reedbeds) – 6000 ha

Fishpond – 6000 ha

Cropland – 5000 ha

Forests and plantations – 2000 ha

The Pentezug Project (1997-?)

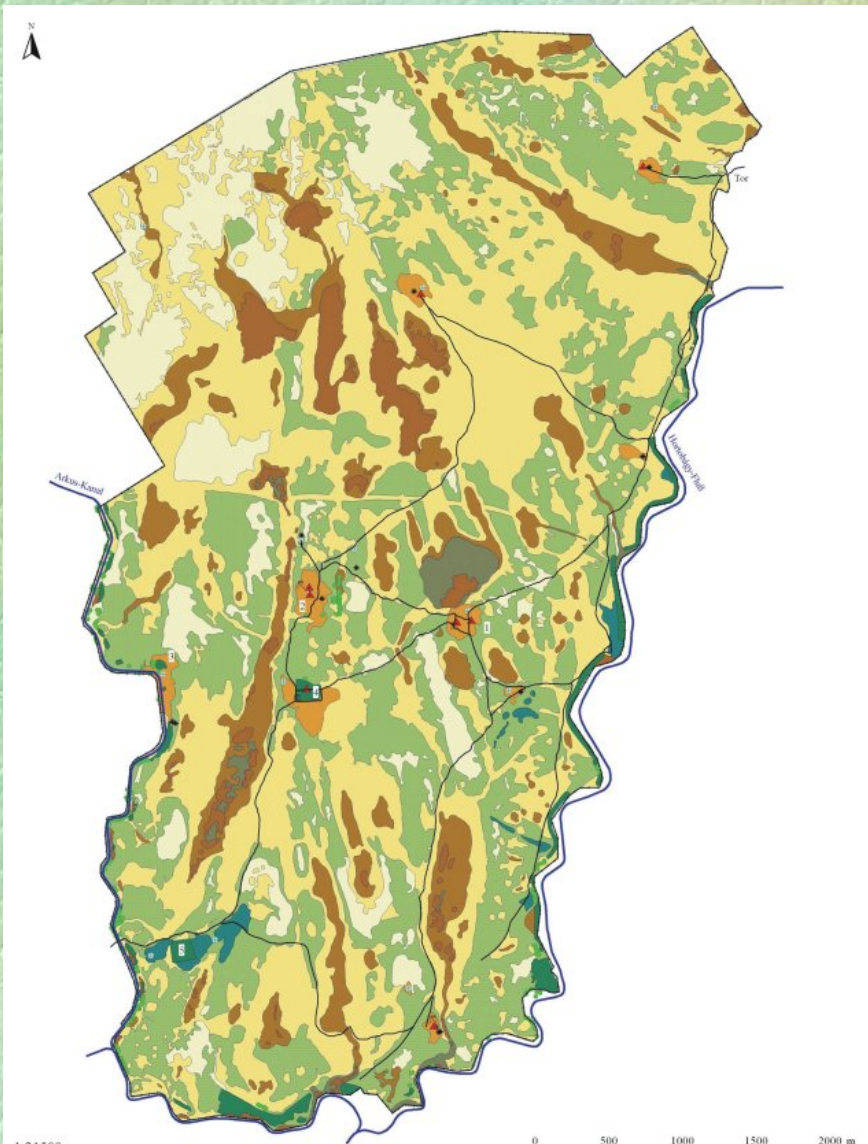
started NOT as a wilderness project

A-zone of the HNP
Pentezug area: 2500 ha

Habitat types of Pentezug

-  **Alkaline meadow**
-  **Alkaline steppe**
-  **Fine-scale highly alkaline geomorphological mosaic of alkaline steppe**
-  **Alkaline marsh**
-  **Reeds, bulrushes**
-  **Ruderal vegetation**
-  **Forest**
-  **Temporary flooded area**
-  **Degraded loess steppe**
-  **River, chanel**
-  **Dirt road**
-  **Fence**
-  **Single tree**
-  **Well**
-  **Building**
-  **Observation point**
-  **Other artificial landmarks**

- 1 - "Witch house"
- 2 - Big stable
- 3 - Kurgan
- 4 - Czinegetanya
- 5 - Töviskes



Areal photography



With the exception of the northern part, Pentezug is surrounded by the river Hortobágy in the East and the channel Árkus in the West, joining in the South. Mosaic pattern: dry steppe, meadows, marshes, river banks.

Vegetation

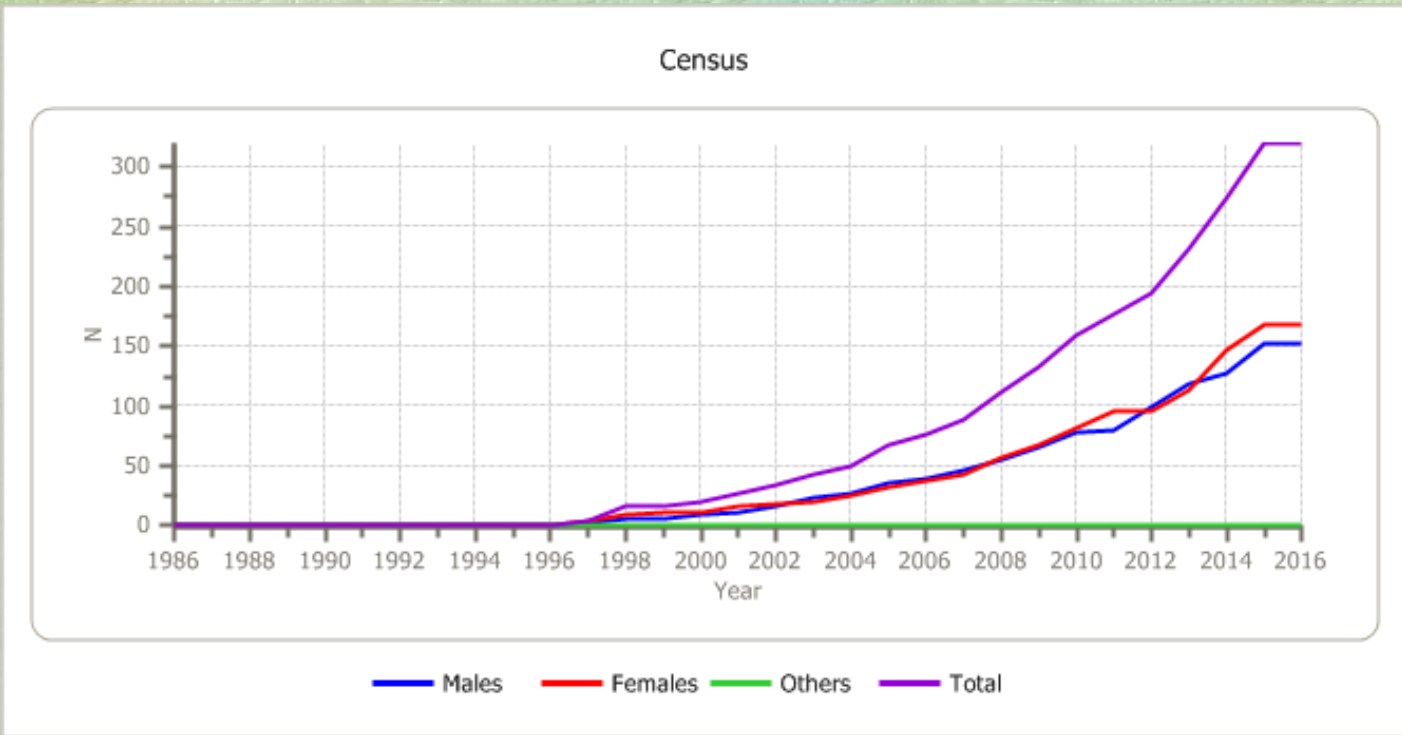


Sodium soil and salt tolerant
plant communities, e.g.
Puccinellia, *Camphorosmetum*



Black soil and fertile ground
form a richer vegetation, here
Alopecurus pratensis

2016 – 319 individuals



Population Management

As little as possible:

- in the beginning replacement of stallions
- euthanizing of severely wounded or ill horses
- for research

Contraception needed: PZP-vaccination programme since 2013

DNA-typing and parentage verification of every single horse
by the Veterinary Genetics Laboratory, University of California, Davis



Introduction of cattle

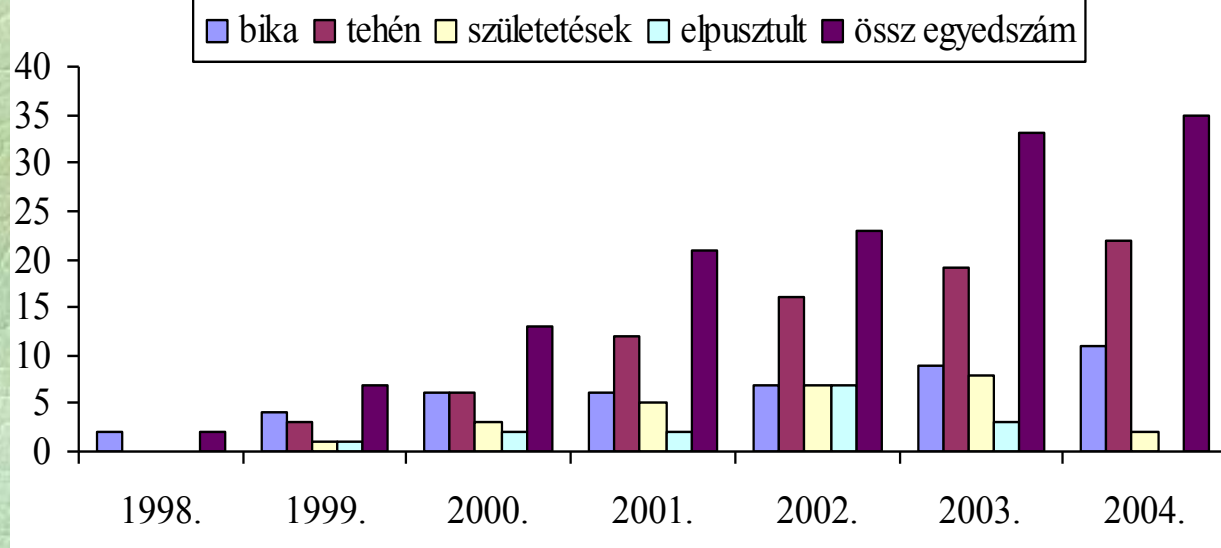
For management reasons not only Przewalski's horses, but also Heck cattle (reconstructed aurochs) were introduced



2016 – 718 individuals



Heck-marha állomány változása
Pentezug 1998-2004.





Natural disturbances







Effect of not controlled grazing



6/23/2011

Image © 2016 DigitalGlobe

Google Earth

2003

Képek dátuma: 6/23/2011 47°30'25.86" É 21°04'42.30" K magasság 84 m szemmagasság: 538 m

Great Bustard observations in the Pentezug Project area



	1994	1995	1999	2000	2001	2002	2003
No. observations	2	2	18	11	17	21	16
Average number of individuals	2	1,5	3,33	3,55	4,53	8,19	3,69

Contribution to endangered species protection



Human (EU) „disturbances”

- 
- contradicting rules and regulations of animal keeping
 - wild or domestic?
 - problems with applying animal welfare regulations
 - EU subsidies against natural processes and wilderness
 - fire prevention + air quality protection
 - *need for exemptions/special regulations for such areas*

Thank you for your attention!

