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LIFE18 NAT/HU/000799



„Közös célunk:
a rákosi vipera megőrzése”

Preparation of viper friendly land management guidelines and recommendations for the CAP in the frame of LIFE HUNVIPHAB

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*LIFE Platform Meeting: Amphibian and Reptile Conservation (ARC)
Challenges and Opportunities in Europe
Santander, Spain - 22 May 2024*



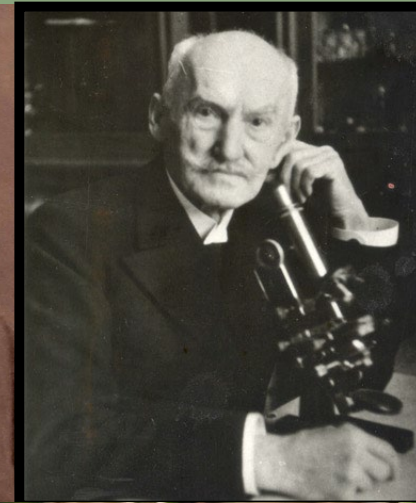
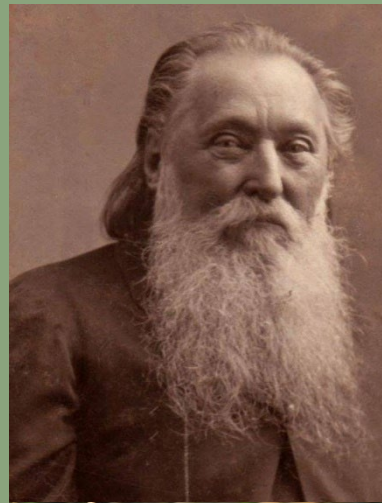
AÑO JUBILAR
LEBANIEGO 2023
FUNDACIÓN CAMINO LEBANIEGO
CANTABRIA



Hungarian meadow viper

(*Vipera ursinii rakosiensis*)

- Described in 1893 (*Méhely*)
- Length: 45-60 cm
- Preferred habitat: mosaic of wet and dry meadows, grasslands
- Overwinters in burrows
- Diet: *Orthoptera*, rodents, lizards, rarely birds
- Mating is in April-May
- 5-20 vipers are born in August
- No fatality since its description!



Journal of Biogeography (J. Biogeogr.) (2012)



ORIGINAL
ARTICLE

Phylogeography of the *Vipera ursinii* complex (Viperidae): mitochondrial markers reveal an east–west disjunction in the Palaearctic region

Anne-Laure Ferchaud^{1*}, Sylvain Ursenbacher², Marc Cheylan¹, Luca Luiselli³, Dušan Jelić⁴, Bálint Halpern⁵, Ágnes Major⁶, Tatiana Kotenko⁷, Najme Keyan⁸, Roozbeh Behrooz⁸, Jelka Crnobrnja-Isailović^{9,10}, Ljiljana Tomović^{9,11}, Ioan Ghira¹², Yannis Ioannidis¹³, Véronique Arnal¹ and Claudine Montgelard¹

¹Biogéographie et écologie des vertébrés (EPHE), Centre d'écologie fonctionnelle et évolutive – UMR5175 – CNRS, Montpellier, France, ²Department of Environmental

ABSTRACT

Aim The aim of this study was to elucidate the phylogeographical pattern of taxa composing the *Vipera ursinii* complex, for which the taxonomic status and the



BRILL

Amphibia-Reptilia 43 (2022): 407–423



brill.com/amre

Well-known species, unexpected results: high genetic diversity in declining *Vipera ursinii* in central, eastern and southeastern Europe

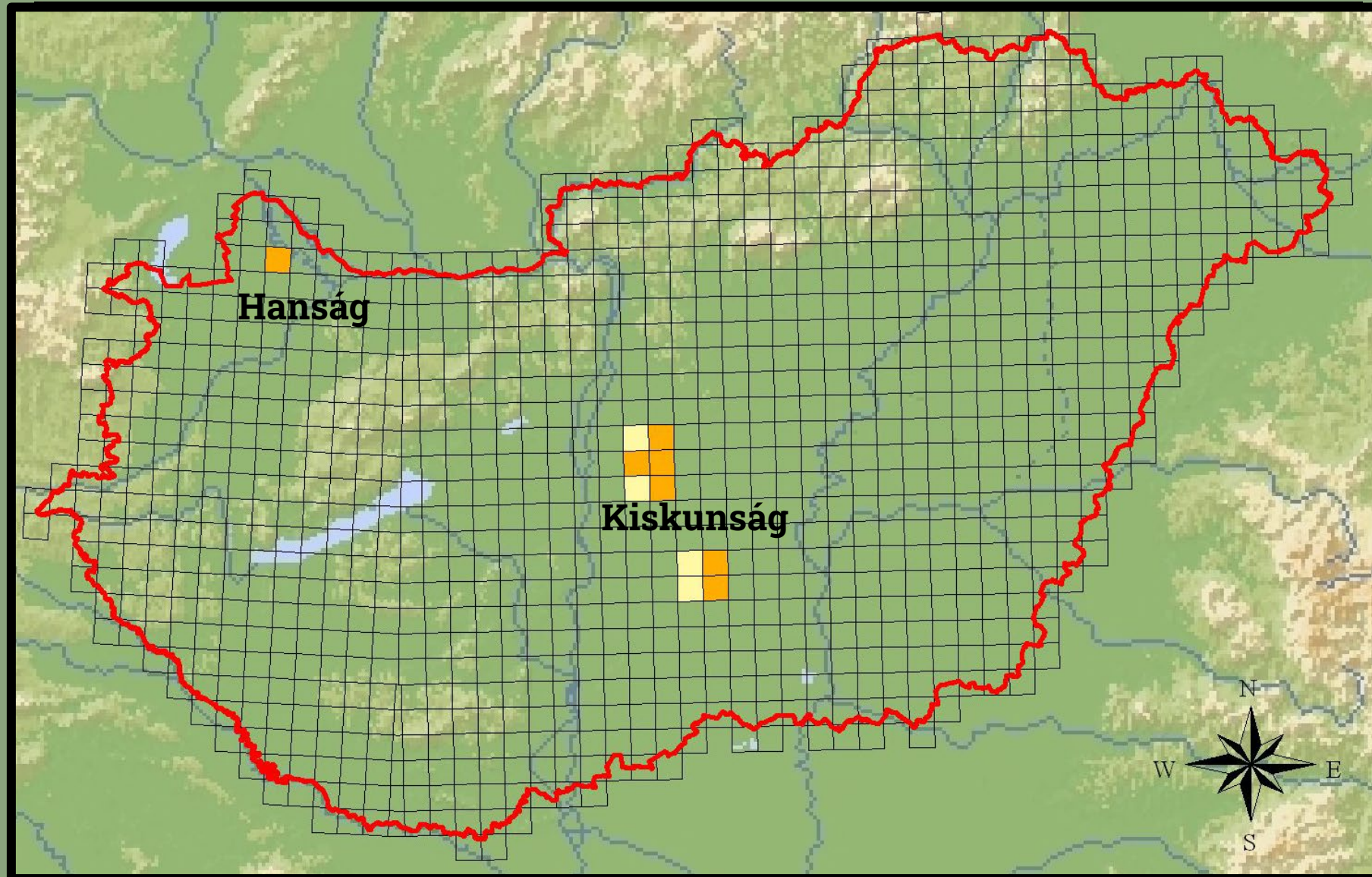
Judit Vörös^{1,2,*}, Sylvain Ursenbacher^{3,4,5}, Dušan Jelić⁶, Ljiljana Tomović⁷, Jelka Crnobrnja-Isailović^{8,9}, Rastko Ajtić¹⁰, Bogoljub Sterijovski¹¹, Oleksandr Zinenko¹², Ioan Ghira¹³, Alexandru Strugariu¹⁴, Stefan Zamfirescu¹⁵, Zoltán Tamás Nagy¹⁶, Tamás Péchy¹⁸, Virág Krízsi^{2,17}, Orsolya Márton², Bálint Halpern^{18,19,20,21}

Threat factors and reasons of decline

- Ploughing of grassland – habitat loss
- Drainage programs
- Mechanic mowing
- Climate change



Hungary – before and after waterway control

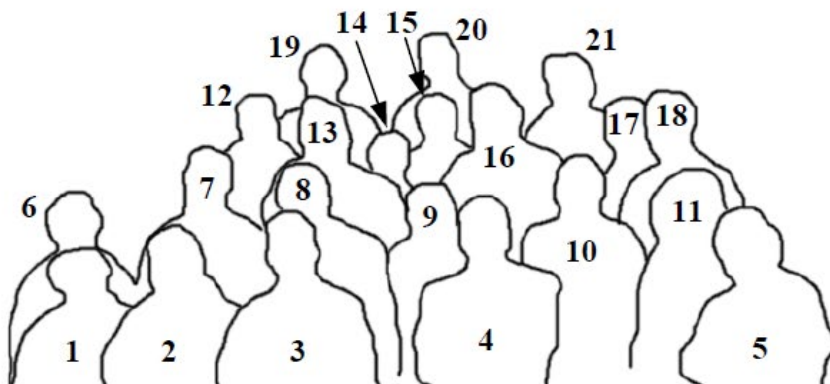




IUCN CBSG PHVA: 2001



1. Tatiana Kotenko
2. Göran Nilson
3. Zoltán Korsós
4. Miklós Persányi
5. Jean – Pierre Baron
6. Róbert Dankovits
7. István Vidákovits
8. Ulysses Seal
9. Keith Corbett
10. Ștefan Zamfirescu
11. Ljiljana Tomović
12. Bálint Halpern
13. Philip Miller
14. László Krecsák
15. Tamás Tóth
16. Ivan Rehák
17. Gergely Babocsay
18. Ferenc Sípos
19. Endre Sós
20. Gábor Herczeg
21. Tibor Kovács



Rákosi Vipera

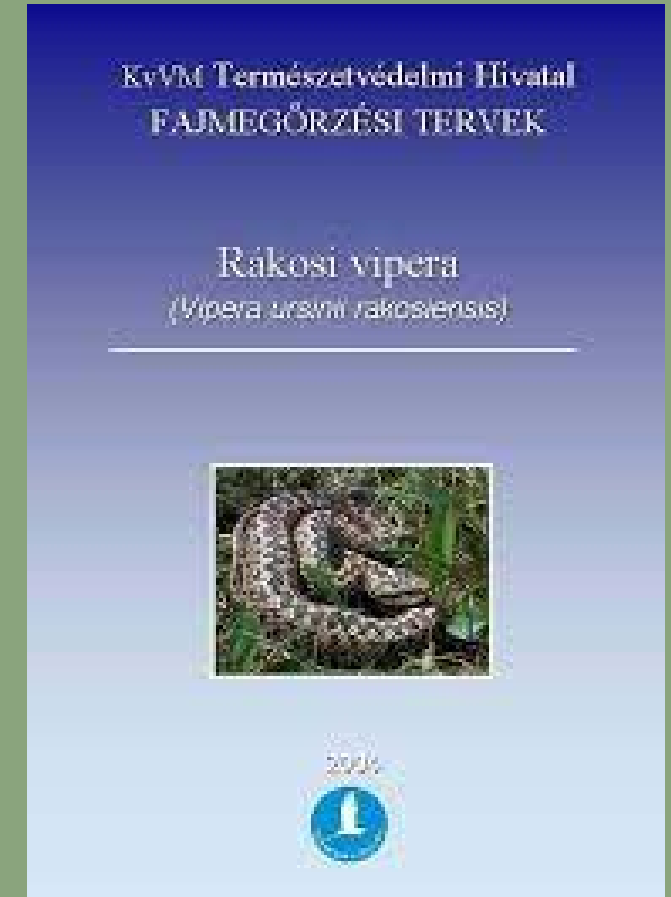


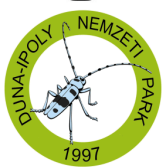
**Population and Habitat Viability Assessment
for the Hungarian Meadow Viper
(*Vipera ursinii rakosiensis*)**



Species Conservation Plan - 2004

- signed by the Minister of Environment and Water Affairs – Miklós Persányi
- vision for 15 years
- includes Protocol for Breeding





I. LIFE-project: 2004-2008

„Establishing the background of saving the Hungarian meadow viper (Vipera ursinii rakosiensis) from extinction” HUNVIPURS LIFE04/NAT/HU/000116

- 2004: Opening of Hungarian Meadow Viper Conservation Centre



The Minister survived the opening ceremony...



II. LIFE-project: 2009-2013

„Conservation of Hungarian meadow viper (*Vipera ursinii rakosiensis*) in the Carpathian-basin”
CONVIPURSRAK LIFE07 NAT/H/000322

- 2010: Reintroduction started
- László Sólyom, the President visiting – and he also survived...







2014-2019: „After-LIFE”

- Continuous breeding and reintroductions
- Monitoring of reintroduced populations







2019-2025: III. LIFE-project

„Viability improvement of Hungarian meadow viper populations and habitats in the Pannonian region”

LIFE HUNVIPHAB - LIFE18 NAT/HU/000799



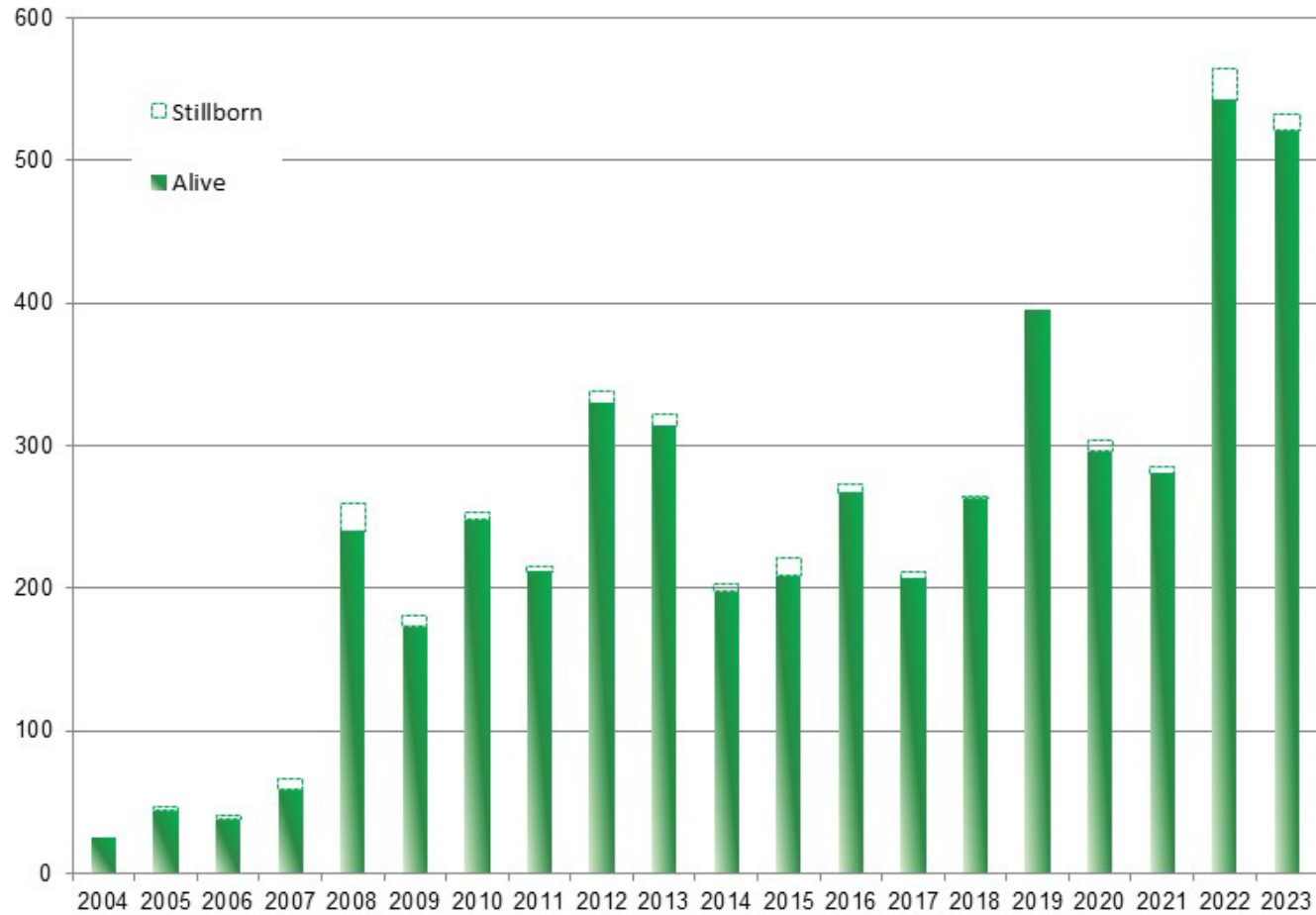
A rákosi vipera természetvédelmi helyzetének javítása a Pannon régióban - LIFE18 NAT/HU/000799

Improvement of breeding conditions at the Hungarian Meadow Viper Conservation Centre

- Indoor facility: 140 terraria
- 1st stage: 100 outdoor terraria
- 2nd stage: further 96 terraria

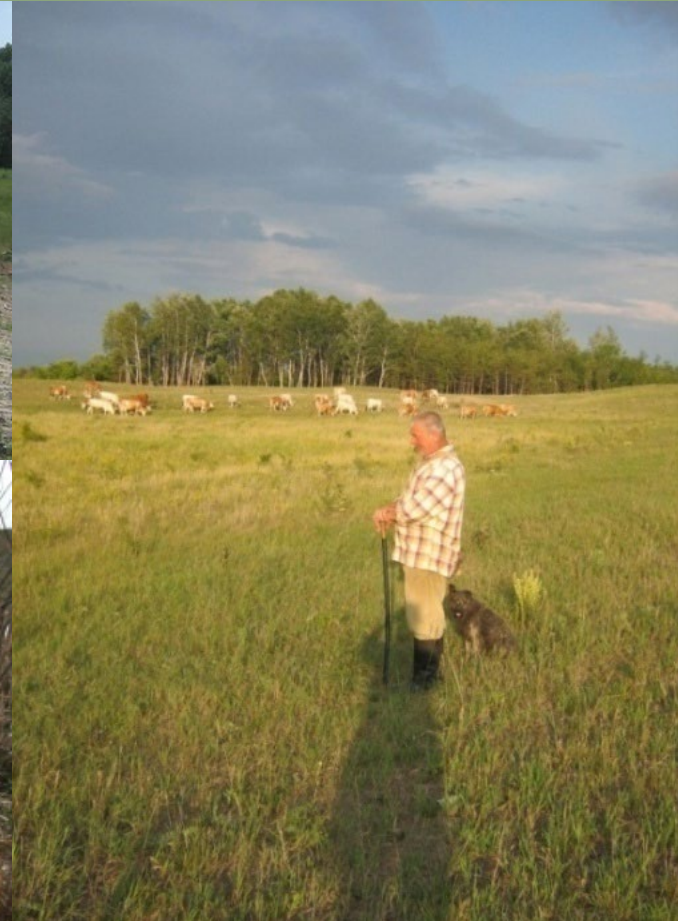


20 years - 4.900 vipers born

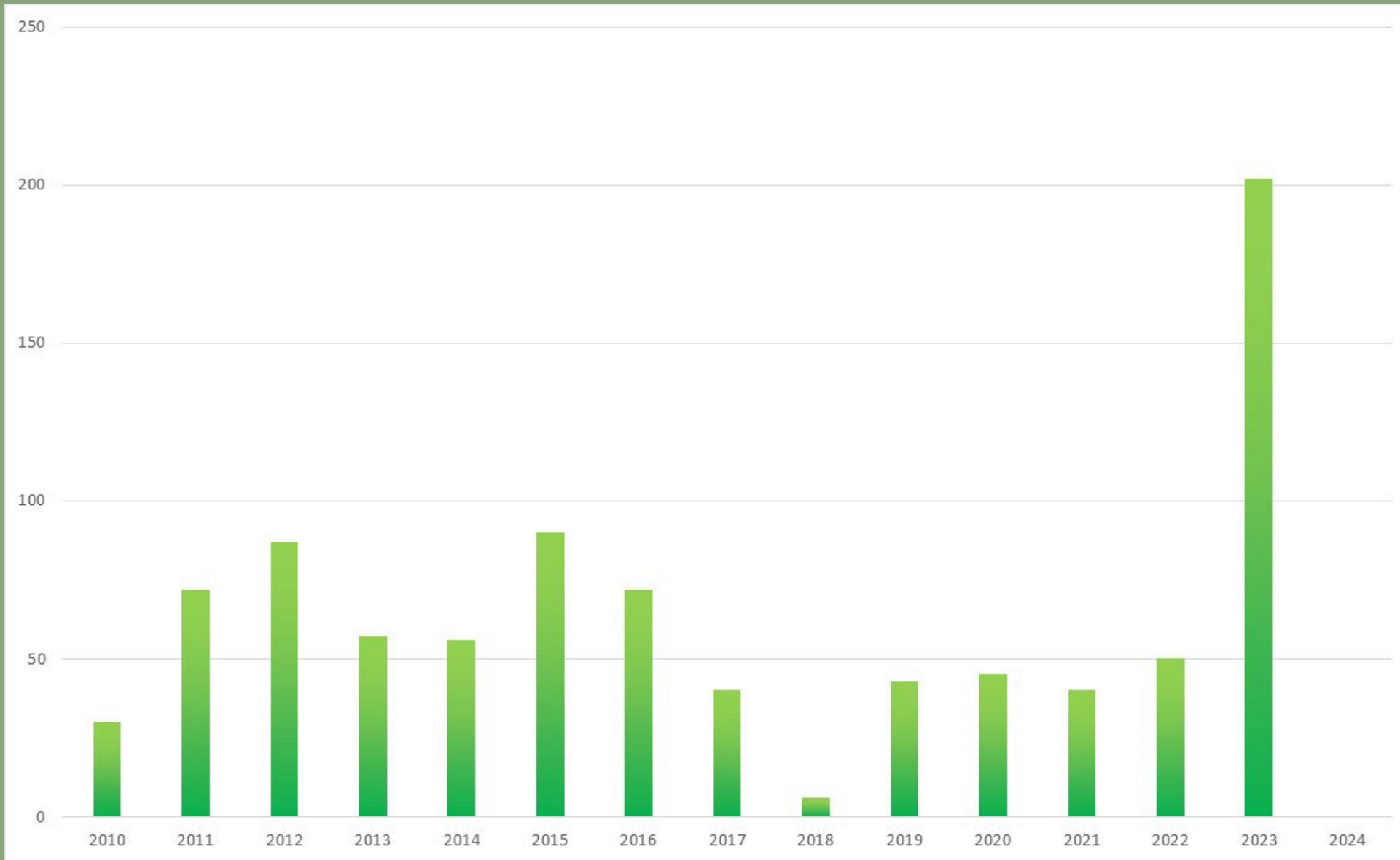


Habitat reconstruction

- Conversion of arable land or tree plantation to grassland on larger scale in Kiskunság and Fertő-Hanság NPs



Annual number of reintroductions

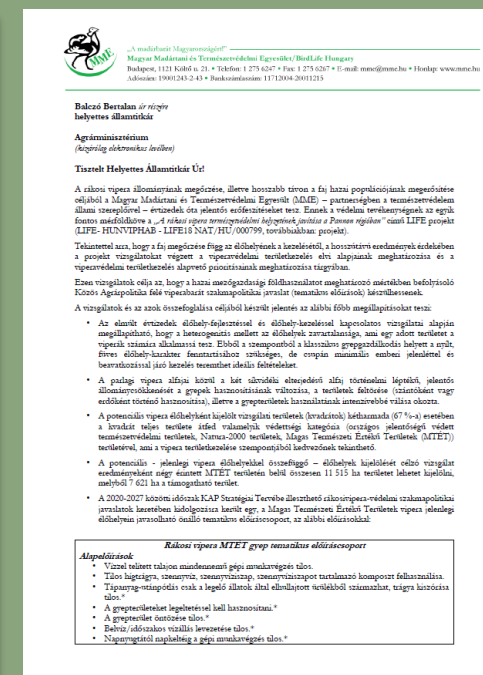
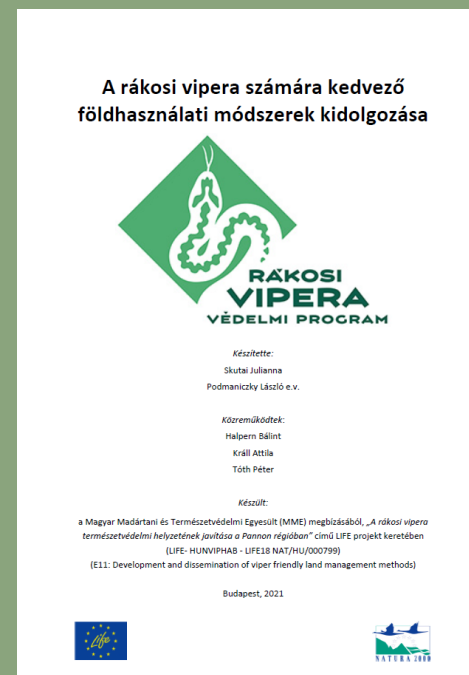


Monitoring results



E11. Development and dissemination of viper friendly land management methods

- analysis of the current CAP payment systems
- participatory planning process, involving stakeholders, but COVID...
- use of available spatial information, including species distribution modelling (SDM)
- CAP Policy Recommendation
- submitted to Ministry of Agriculture



Main results of the analysis

- ensuring earlier description of the species habitat use: mainly drier grassland types preferred
- most significant threat factors are related to agricultural use
- large-scale depopulation of the lowland subspecies was caused primarily by changes in the utilization of grasslands, conversion to arable land or tree plantation, and the intensification of the use of remaining grasslands
- heterogeneity, the lack of regular disturbance are key factors
- implementation is not totally in line with management prescriptions
- treatment required to maintain the character of an open, grassy habitat, but with minimal human presence and intervention, instead of classical grassland management, can create ideal conditions



Mechanical mowing still affects viper habitats



Financial constraints for mowing



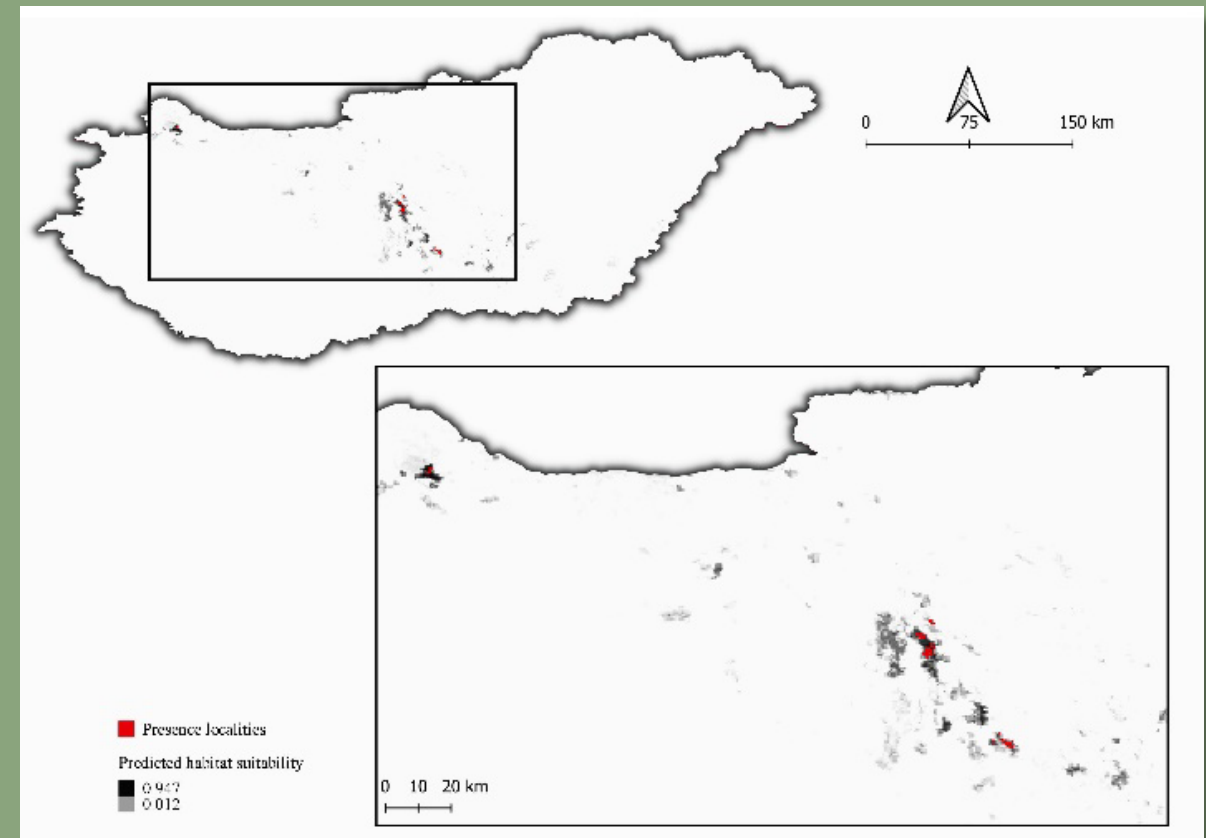
Timing of management

- Timing of mowing or grazing is decided by logistic or fiscal basis, or according to other nature conservation priorities
- Bales are often left on the site for long period
- Sensitive periods for vipers:
 - mating season in March-April
 - birth in July-August
 - pre-hibernation moves in October



A2. Prediction mapping of potential Hungarian meadow viper habitats

- analysis using climatic variables or climate + land cover
- Paun Georgina: WorldClim – Corine 2018
- Dennis Rödder: CHELSA – Corine 2018 – EEA 2015, later ecosystem-function map (NÖSZTÉP)



SDM results

- besides presence of grasslands, rainfall seasonality and annual rainfall are the most important environmental factors for vipers
- Two-thirds (67%) of potential viper habitat overlaps with one of the protection categories (protected nature areas, Natura-2000 areas, High Nature Value Areas)
- A total of 11 515 ha could be designated within the four HNVs concerned, of which **7 621 ha** are eligible areas under CAP.

Policy proposal

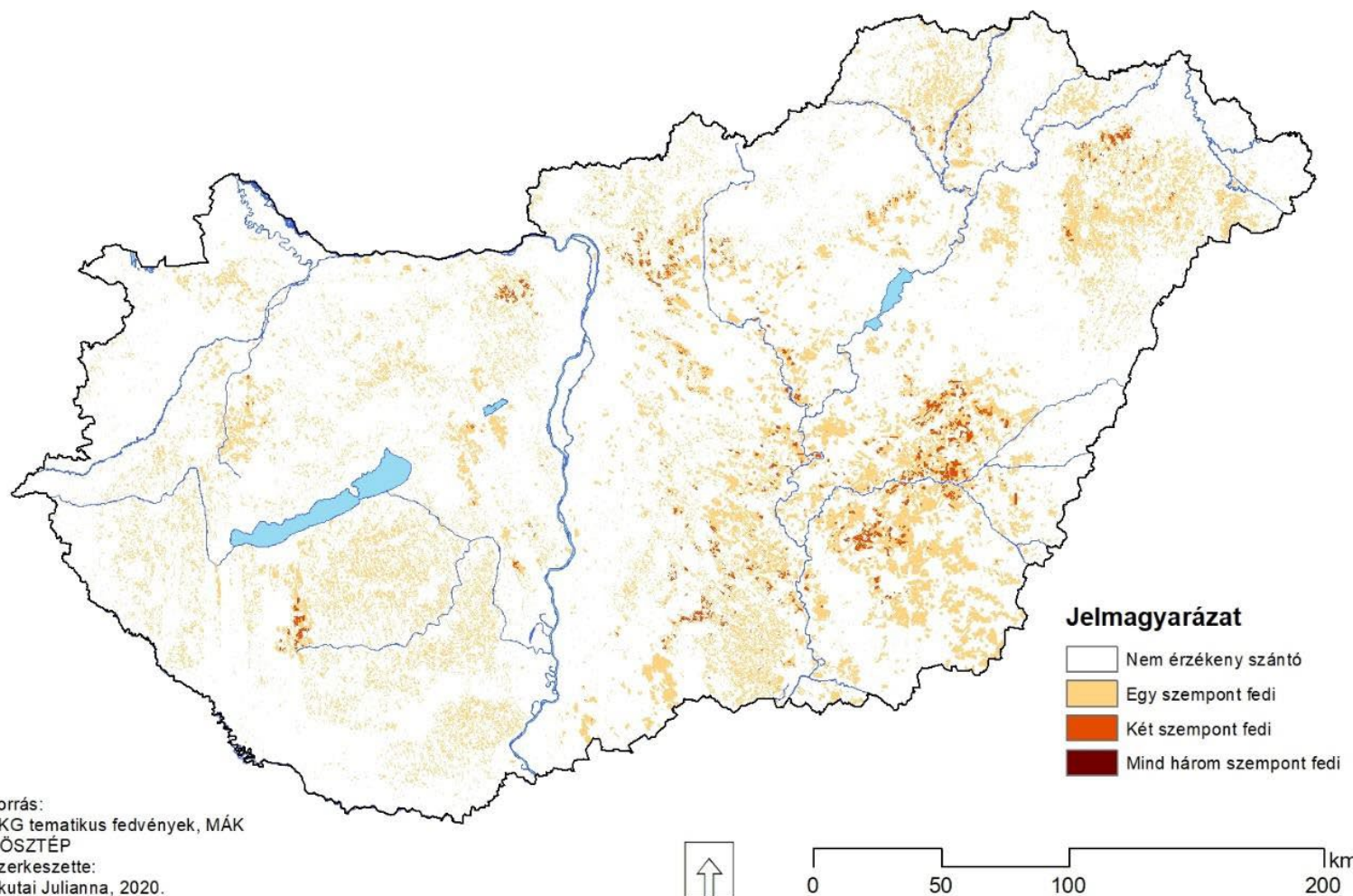
- Hoped to be included in the CAP Strategic Plan for the period 2020-2027
- Independent thematic set of regulations developed for viper habitats of in High Nature Value Areas
- Ten-year period proposed, beyond the current commitment period.
- Support program for potential viper habitats: *“Nature conservation grassland in arable land”* - supplementing the relevant content of the Rural Development Program *“Non-productive investments for habitat development”* call
- For key private habitats, long-term guarantees can be provided by the transfer to state ownership of the land and the management by national park directorates (but financial constraints should be handled)

Study done by LIFE-IP GRASSLAND-HU

- Analysis on arable land-use and vis-major payments due to climate extremities (drought, flood) - 2-3 times higher frequency of payments
- A total of **72 915 ha** area (1.71%) proposed for instant cultivation change
- Creation of grassland on those arable land parcels would significantly reduce such vis-major claims in the future
- These future grasslands may help bringing back various ecosystem functions, like pollinators, water-storage, carbon-fixation
- This spatial information combined with distribution modelling, adding potential climate change scenarios into the models, can provide strong reasoning in the prioritisation of any future habitat restoration effort.

Sensitivity to draught, flood or erosion

Területek belvíz-, aszály-, erózió-érzékenységi meghatározottsága



- Dry grass is an important habitat feature for vipers (and many other species), having ecosystem-functions that are not valued
- Unmowed stripes are focusing predation, usually not wide enough, better to leave unmowed areas
- Bales are serving as perch-places for predators, they should be removed ASAP
- Lack of management or reduced management is necessary to maintain or improve viper habitats
- Goals of management are not the same from all stakeholders
- Financial constraints should be handled in a viper-friendly way
- SDM is a promising tool
- We already possess knowledge to a great extent. Let's use in planning!

A photograph of two snakes, likely garter snakes, in a grassy field. The snakes are positioned vertically, with their heads raised and facing each other. They have a light-colored body with dark, wavy bands. A green speech bubble with a tail pointing to the right snake contains the text "Thank you for your attention!". The background is a blurred mix of green grass and dry, brownish vegetation.

Thank you for
your attention!