



Ministry of Agriculture

**Results of the implementation
of the Rabies co-financed eradication
programme
in Hungary in 2013**



History of rabies in Hungary

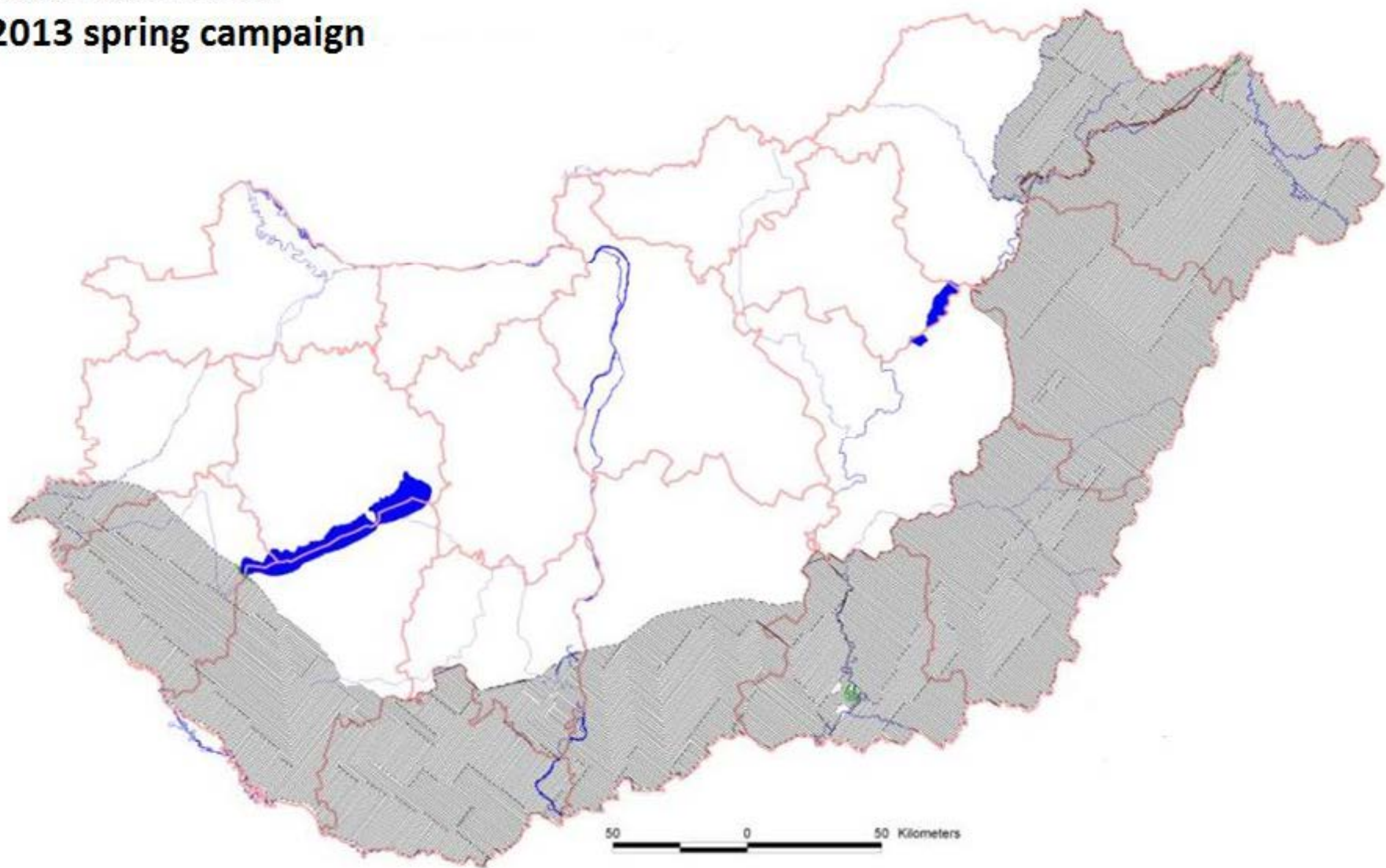
- 1930's: As a result of the introduction of strict rules for keeping dogs (keeping a record of dogs) and the obligatory immunization of dogs in each year - **Hungary became free from urbanic rabies**
 - **Sylvatic rabies was introduced** into Hungary from the North in 1954; by the end of 1971 the whole country had become infected.
 - 1992: **oral vaccination of red foxes** started in Western Hungary
 - 1993 - 1996: **oral vaccinations two times a year**, 6.000 km²
 - 1996 - 2000: **Transdanubia** was covered by vaccination. As a result, rabies has disappeared from Transdanubia by the end of 2000.
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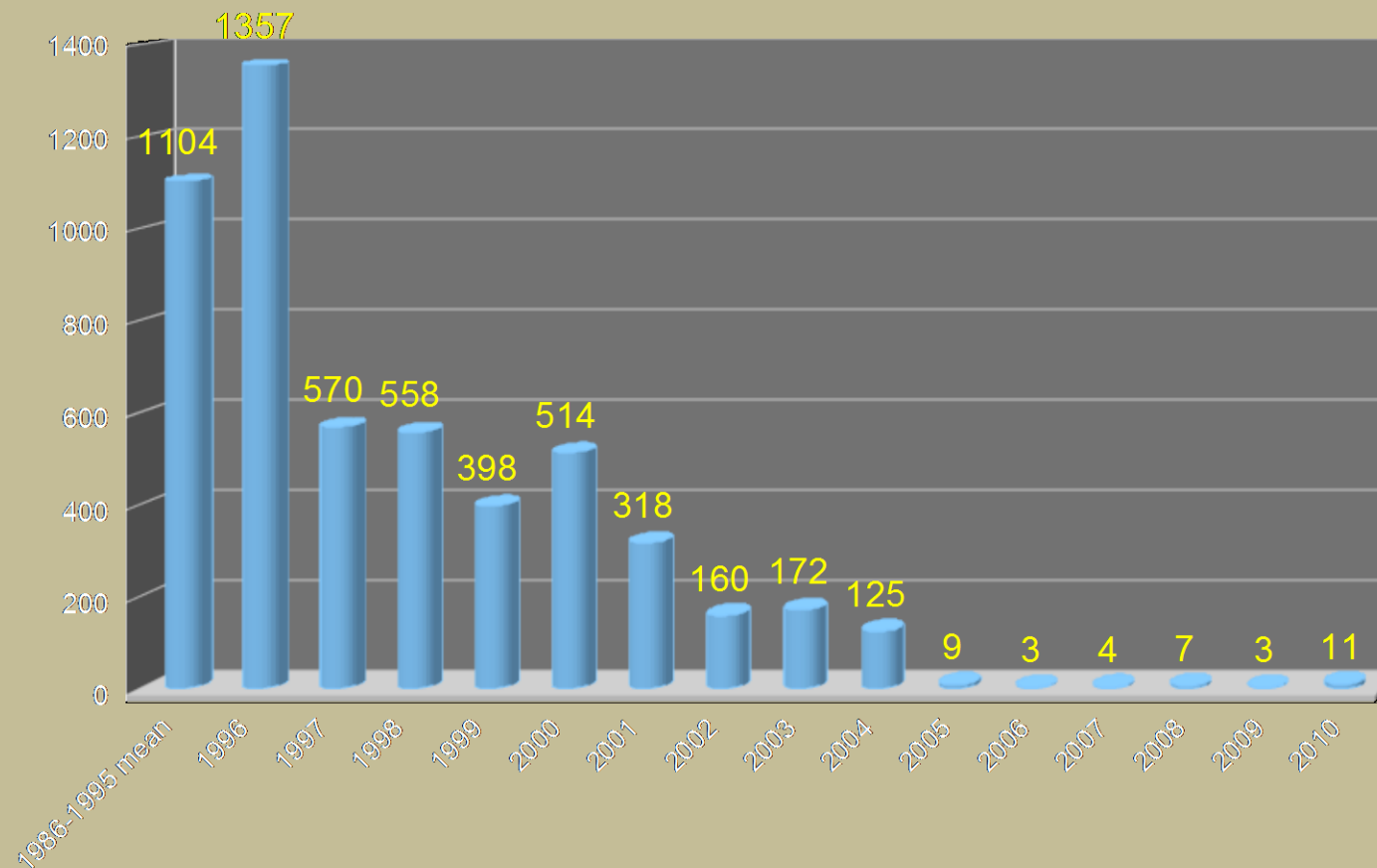
History of rabies in Hungary

- From 2001 the territory between the river “Duna” (Danube) and the river “Tisza” had been involved in the immunization campaigns.
 - 2004, 2005 and 2006: the bait distribution has been extended over the whole country.
 - Since 2007 the rabies eradication, control and monitoring programme is approved and co-financed by the Community.
 - Since 2008, due to successful vaccination programmes in Austria and Slovakia, distribution was only carried out in the 50 km wide border zone of Hungary from Slovenia to Ukraine
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Vaccination area
2013 spring campaign



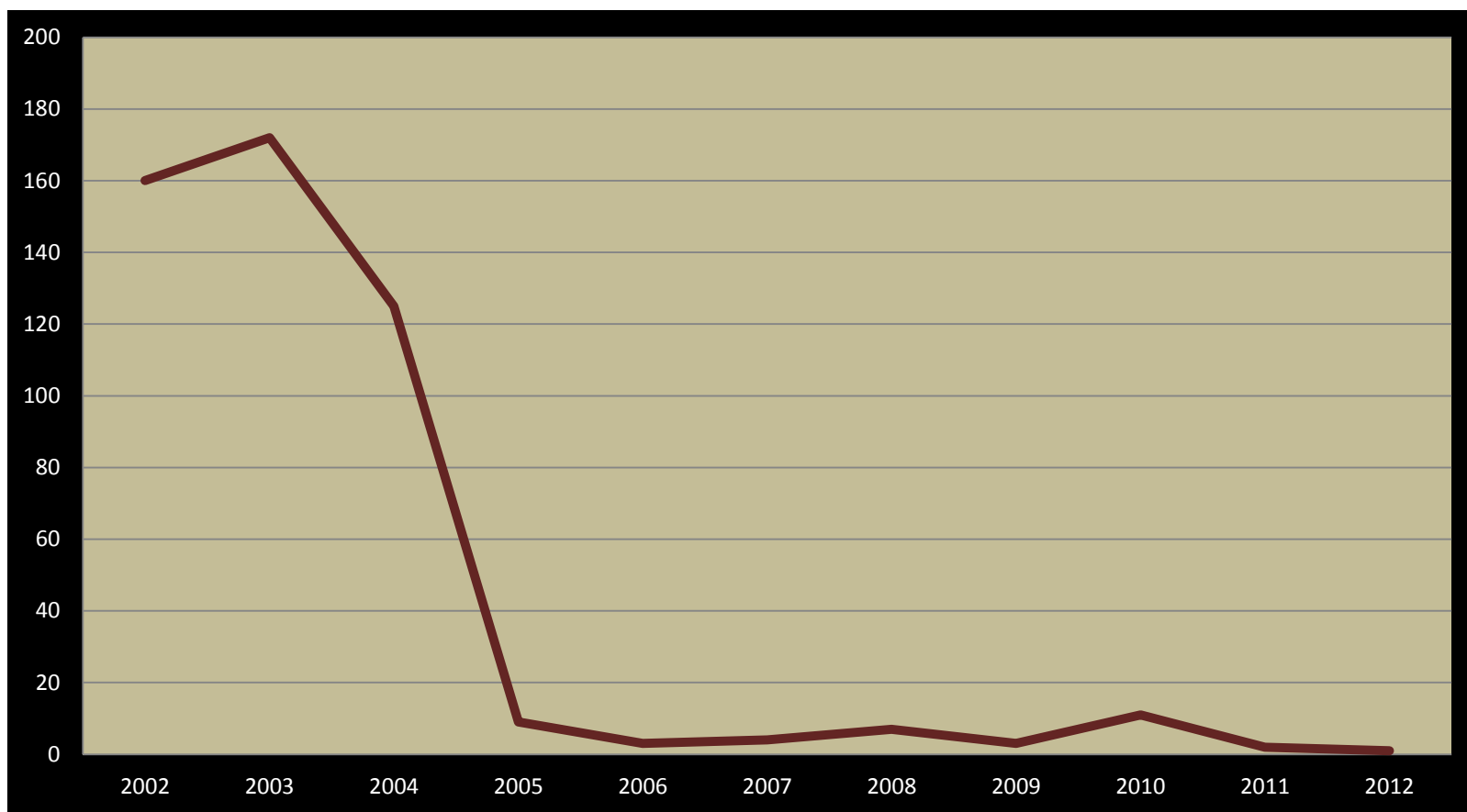
Rabies cases in Hungary 1988-2010



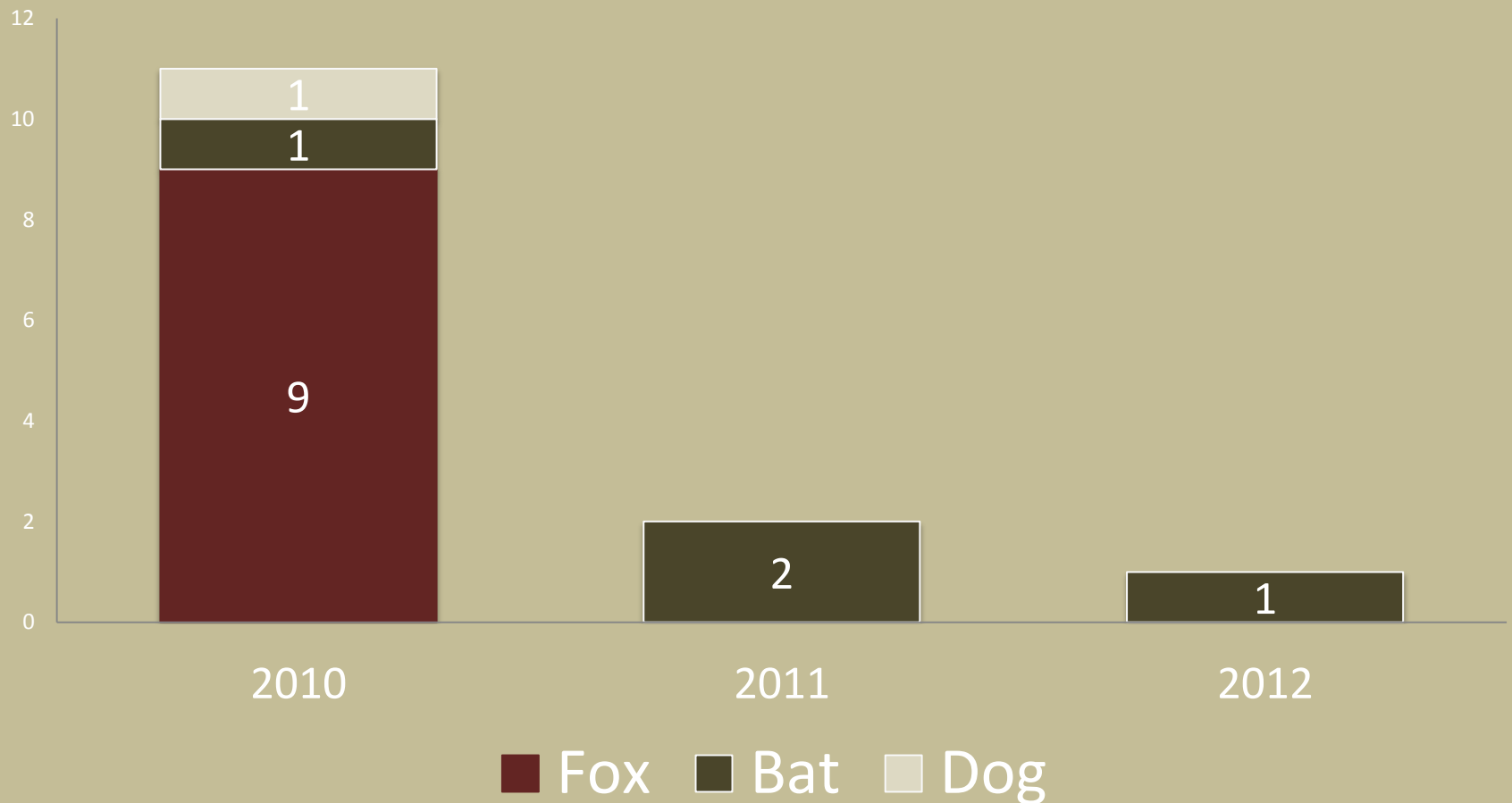


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Rabies cases in Hungary 2002-2012



Rabies cases in Hungary 2010-2012





Outbreaks - autumn 2013

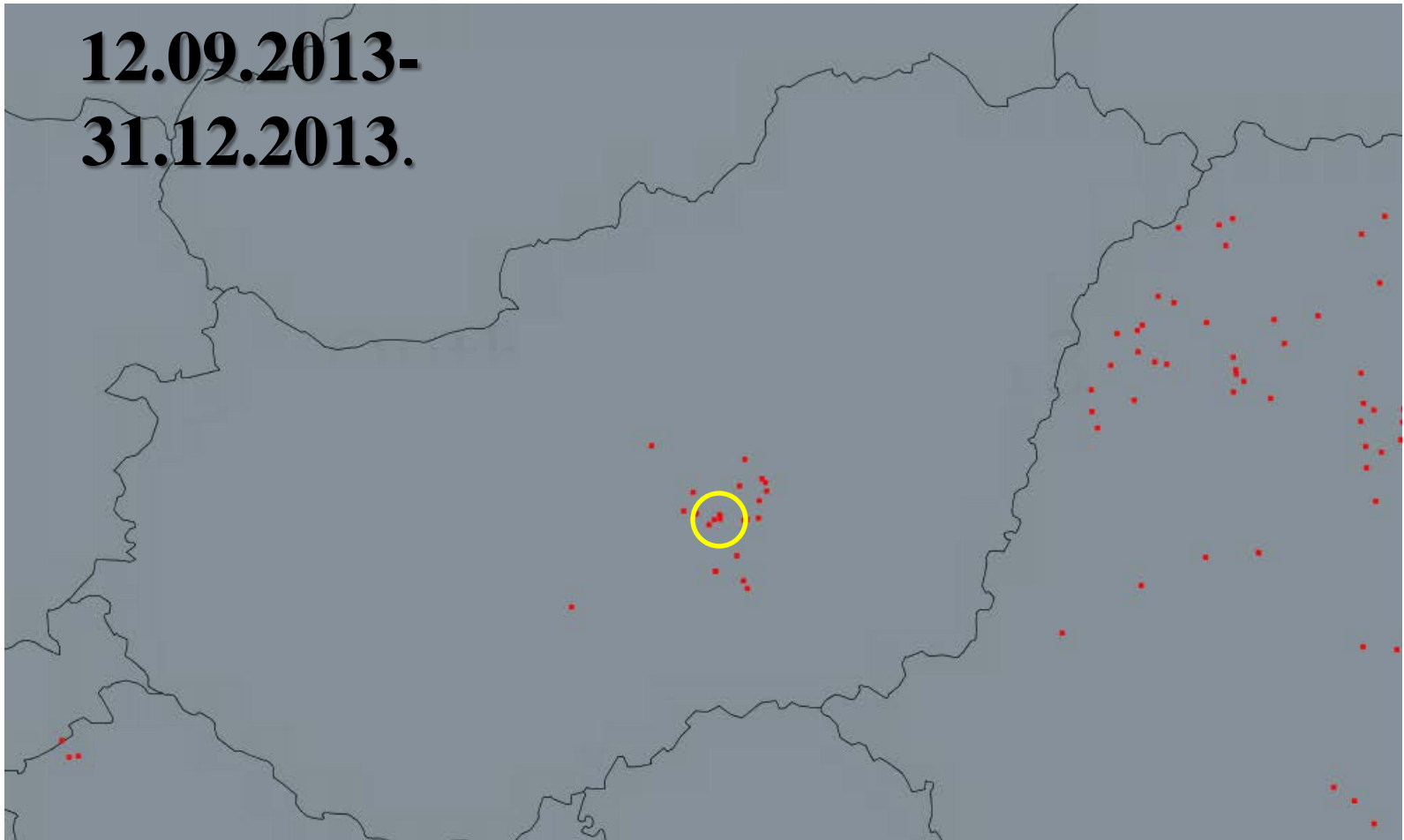
- 2011 and 2012: only in bats (EBLV)
 - 12.09.2013. rabies was confirmed in a red fox in Bács-Kiskun county
 - The case occurred outside of the vaccinated area
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Outbreaks in 2013

Region (county)	Species	Number of infected animals
Bács-Kiskun	fox	16
Bács-Kiskun	cattle	1
Jász-Nagykun-Szolnok	fox	3
Pest	fox	3
Pest	cattle	1
Total		24

Outbreaks in 2013

**12.09.2013-
31.12.2013.**



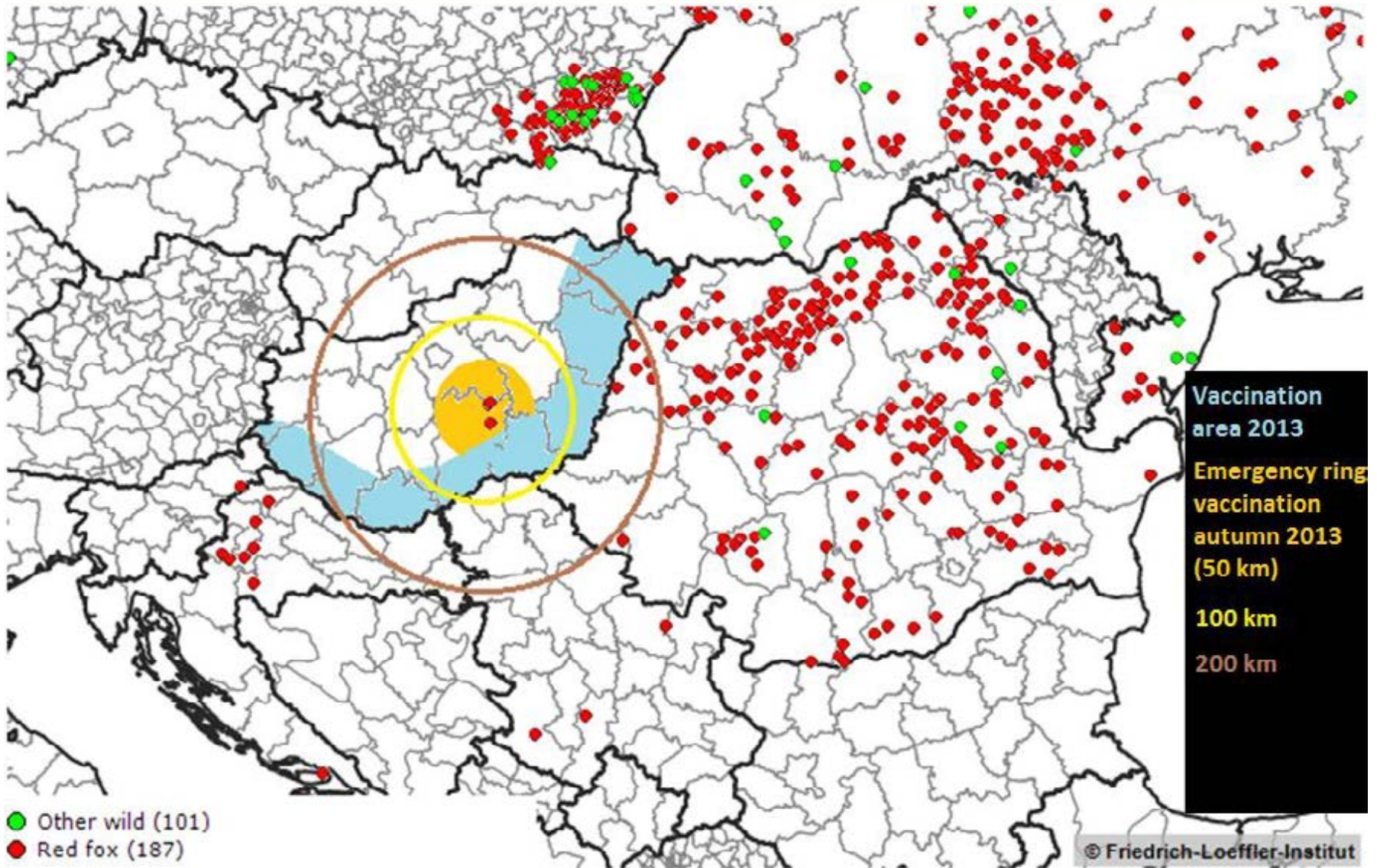
Outbreaks - autumn 2013

Measures:

- Ban on animal movement in infected holdings
 - Culling (and compensation) of animals showing clinical signs
 - Preventive vaccination of cats and farm animals
 - Official surveillance for 90 days on affected holdings
 - Ban on grazing was ordered
 - Restriction of dog movement in infected city/village
 - Raising public and veterinary awareness
 - Increased number of samples (red foxes) – surveillance to identify geographical spread of the disease
 - Emergency vaccination was implemented during the 2013 autumn campaign in a 50 km radius –circle around the first outbreak
 - (Extension of vaccinated area from spring 2014)
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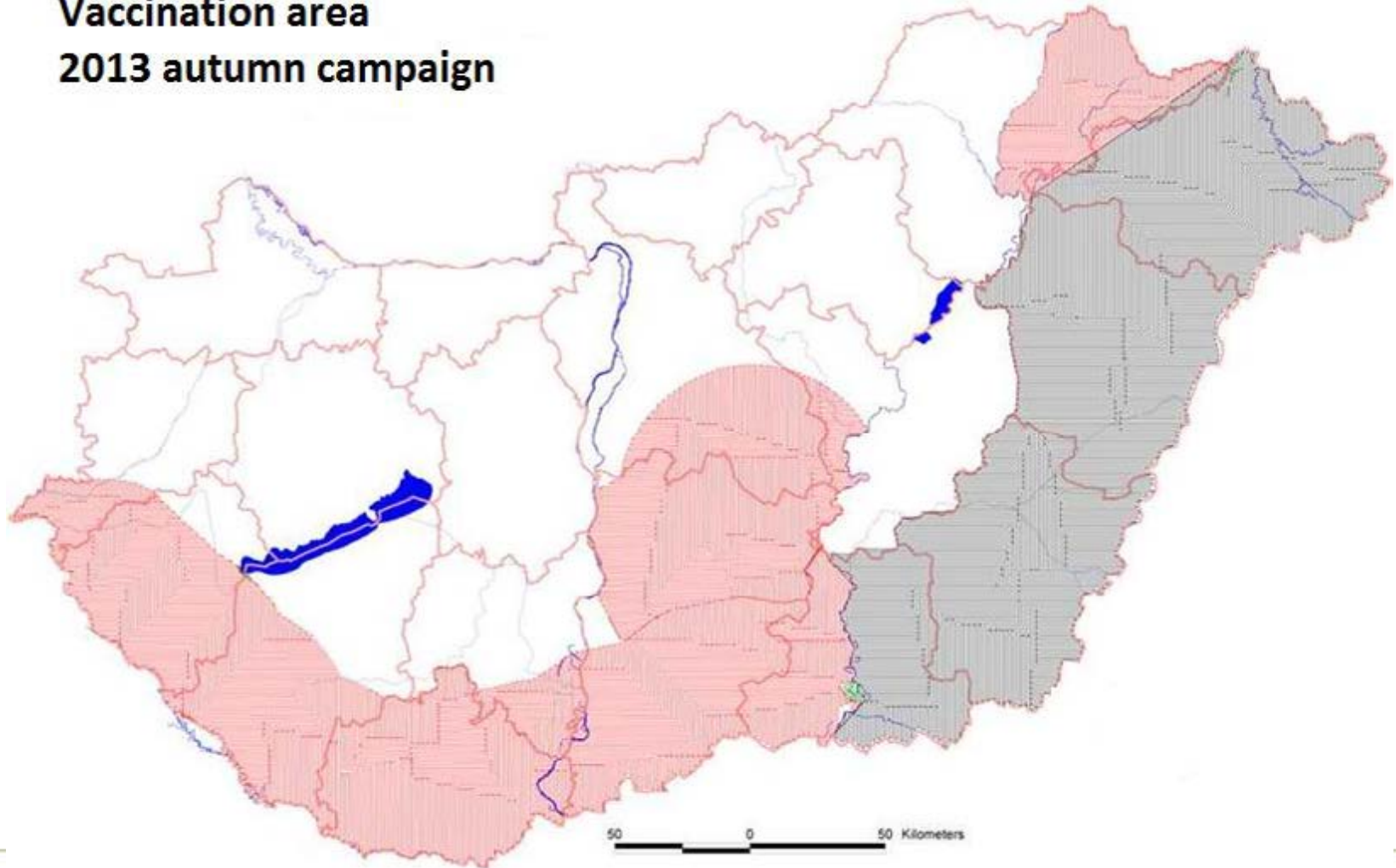


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Area vaccinated in autumn 2013

**Vaccination area
2013 autumn campaign**



Oral immunisation programme

- Target species: **Red fox** (*Vulpes vulpes*) (golden jackal, badger – not significant)
 - 2013: Annual programme
 - 2 vaccination campaigns: spring/autumn
 - †Vaccinated area: specified part of the country
 - Vaccine type: Lysvulpen
 - Distribution: aerial + manual
 - Implementation of sampling: hunters (hunting organisations)
 - Hunting period: 30 - 100 days after vaccination campaign
 - Control of efficiency of vaccination (serology, biomarker –TC)
 - Rabies surveillance (immunefluorescent test)
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Distribution of vaccine baits

- Lysvulpen® vaccine (Bioveta)
 - 98% aerial distribution (airplanes):
 - GPS system, flying lines & dropping of baits recorded by computer
 - Distance between flight lines: 1000 m
 - Flying speed: 100-120 km/h
 - Density: 20 baits/km²
 - Flying lines rotated with 90° in the next campaign
 - 2% manually:
 - Where flying is not allowed or more targeted distribution needed (oil and power plants and railway transfer zones)
 - Carried out by qualified wild life biologists
 - GPS planning and recording
-

Activities in 2013- Distribution of vaccines

	Area covered by vaccination (km ²)	Flight distance/ bait density	Number of baits distributed	Number of campaigns	Total number of vaccines distributed
Regular vaccination	41 045	1000 m/ 20 baits/km ²	820 900	2	1 641 800
Emergency (ring) vaccination	6 999	1000 m/ 20 baits/km ²	139 860	1	139 860
				Total:	1 781 660

Activities in 2013- Distribution of vaccines



Activities in 2013- Distribution of vaccines





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Activities in 2013- Control of vaccination efficiency

Laboratory background:

National Food Chain Safety Office/

Veterinary Diagnostic Directorate/

Budapest (National Reference Laboratory)

Debrecen (regional laboratory)

Kaposvár (regional laboratory)

Monitoring on efficiency of the oral immunization

- biomarker tetracycline test (bone polishing of the mandible) - test for bait uptake
- serological test (ELISA)
- direct immunfluorescence of brain imprints (FAT)

Titration of vaccines

Veterinary Medicinal Products Directorate



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Results 2013

Type of test	Type of sample	Number of tests performed	Number of positive samples
Virological test Immunfluorescence test (FAT)	Brain (red fox)	1799	2 (0,11%)
Serological test AB-ELISA	Blood (red fox)	856	212 (24,77%)
Bone polishing of the mandible	Mandible (red fox)	1757	1247 (70,97%)

Rabies programme - Costs in 2013

	Nr.	Avg. cost	Ceiling	Lump sum	Total cost (cng, LS)	EU contribution
Sampling	1 799	22,99 €		5 €	8 995 €	8 995*100%
Serological tests	856	7,74 €	16 €		6 623 €	6 623*75%
Biomarker (TC)	1 757	3,72 €	16 €		6 528 €	6 528*75%
Fluoresc. ab tests	1 799	5,39 €	24 €		9 692 €	9 692*75%
Vaccine - purchase	1 741 800	0,25 €	0,8 €		428 479 €	428 479*75%
Vaccine - distribtn	1 781 660	0,38 €	0,47 €		683 636 €	683 636*75%
TOTAL					1 143 953 €	860 213,50 €

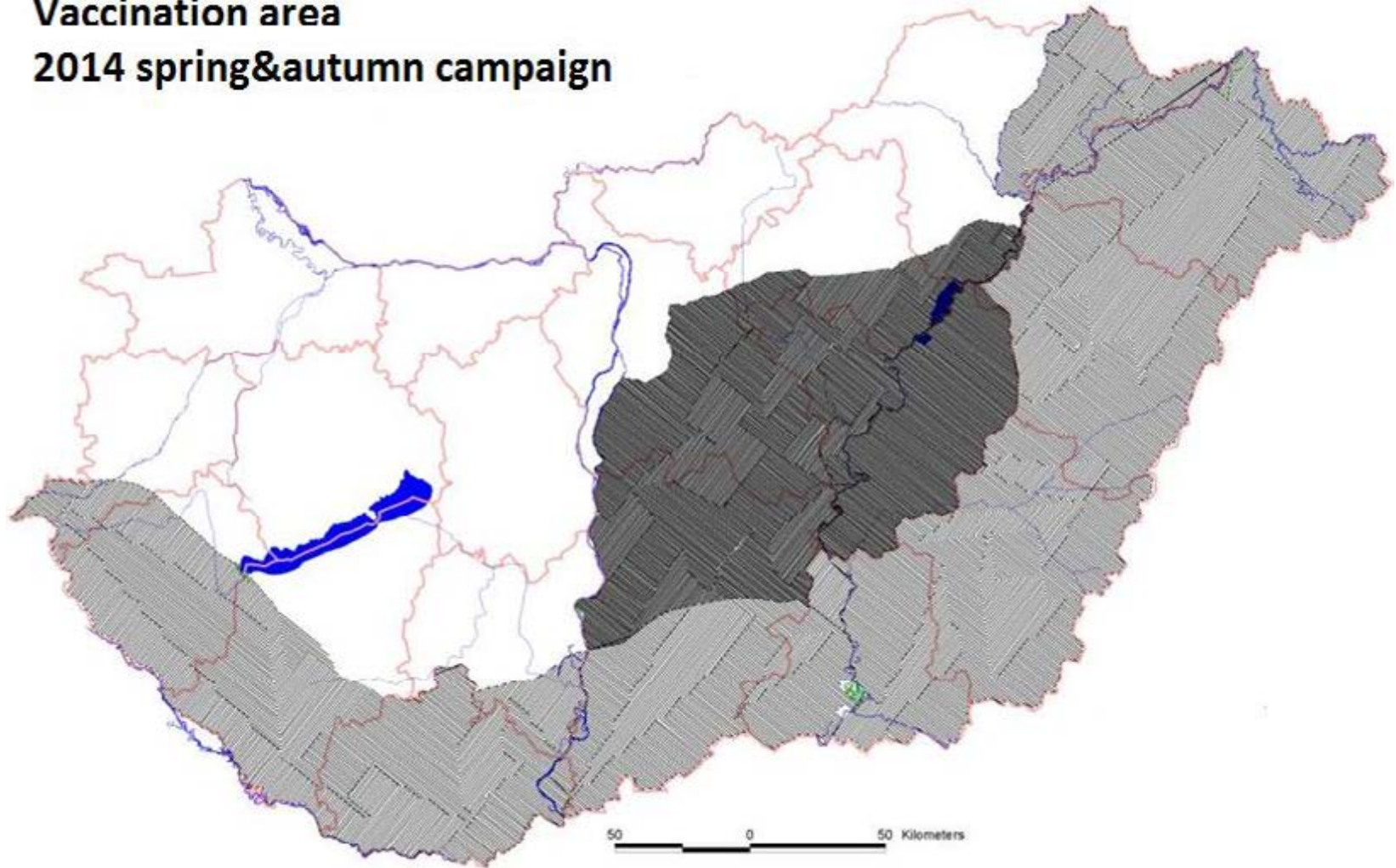


Financial contribution

- 2012/761/EU (30 November 2012)
 - Amended by 2013/766/EU (1 October 2013)
 - The financial contribution by the Union for the oral immunisation programme of red foxes implemented in Hungary in 2013 shall not exceed 1 080 000 €
 - Total cost of the programme: 1 176 697,90 €
 - Costs eligible for co-financing: 860 213,50 €
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Area vaccinated in 2014

Vaccination area
2014 spring&autumn campaign





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Thank you for your attention!

