



GF-TADs
GLOBAL FRAMEWORK FOR THE
PROGRESSIVE CONTROL OF
TRANSBOUNDARY ANIMAL DISEASES



Food and Agriculture
Organization of the
United Nations



World Organisation
for Animal Health
Founded in 1924

SYLVATIC RABIES RE-EMERGENCES IN CENTRAL EUROPE



GF-TADs conference – Belgrade 24 September 2025

Emmanuelle Robardet,

Marcin Smreczak,

Anna Orłowska,

Peter Malik,

Alexandra Nándori,

Zuzana Dirbáková,

Rastislav Odalos,

Oleksii Rudoi,

Ivan Polupan,

Oxana Groza,

Serghei Arseniev,

Florica Barbuceanu,

Vlad Vuta,

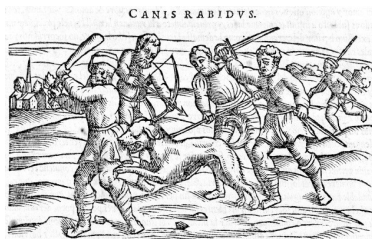
Evelyne Picard Meyer.

RABIES HISTORY IN EUROPE



CANINE RABIES

FOX RABIES (SYLVATIC)



>80% of cases in red foxes



Antiquity

1565

1769

1885



1978

1990

Progressive Elimination

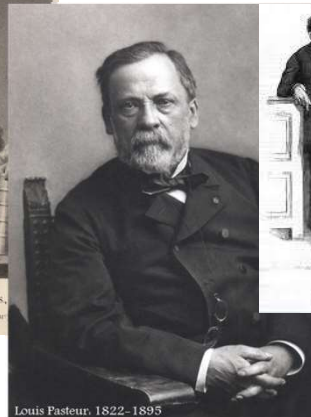


Girolamo Fracastoro
'contagium vivum'

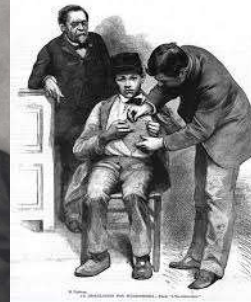


JOHN BAPTIST MORGAGNI, M.D., F.R.S.,
(THE FATHER OF PATHOLOGICAL ANATOMY)

'Spread through
nerve fibres'



Louis Pasteur, 1822-1895



FIRST ORV TRIAL

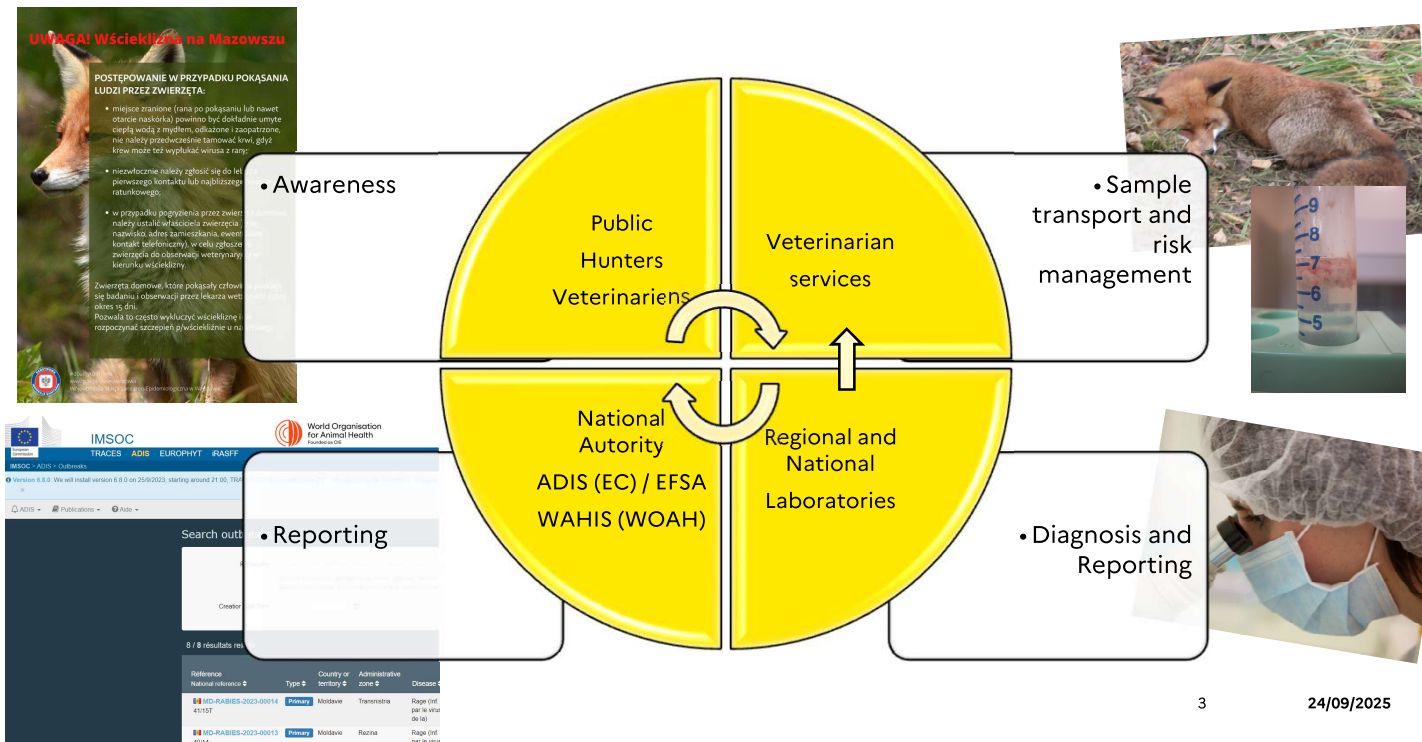


RABIES SURVEILLANCE IN THE EUROPEAN UNION



Notifiable disease of B category (Annex II of Animal Health Law, regulation 2016/429)

Indicator animals: Animal showing clinical signs or abnormal behavior suggestive of rabies, found dead, roadkill or animal involved in human exposure.

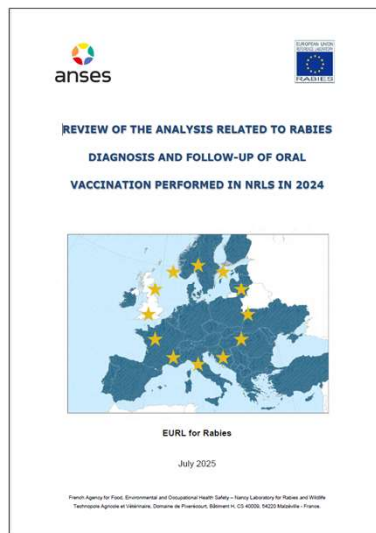


EURL NETWORK: ENHANCING CAPACITY SURVEILLANCE



How to ensure the accuracy of surveillance data (tests results)?

27 EU + 10 Third countries



improvement scientific diagnosing
maintaining Organising
Building collecting improved
collaborating advice implementation
proficiency reagents Rabies
harmonisation experts validation
national workshops courses
providing virus throughout
use official materials typing
antigens test methods inter
Carrying research trials staff
abreast reports strains control
workshop analysis standard training
eradication countries third laboratories
supplying reference
coordinating storing diagnostic
results information analytical
Commission controlling

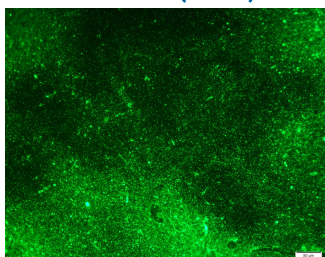


Evaluation and characterization of the performance
of intra/inter-laboratory methods, of reference materials, of reference laboratories

DIAGNOSIS



FLUORESCENT ANTI-BODY TEST (FAT)



Antigen detection

RABIES TISSUE CULTURE INFECTION TEST (RTCIT)



Virus isolation

CONVENTIONAL RT-PCR PAN REAL TIME RT-PCR



RNA detection

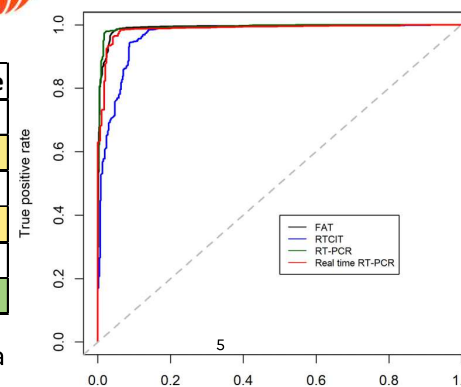


WHO, 2018 WOA, 2023 standards



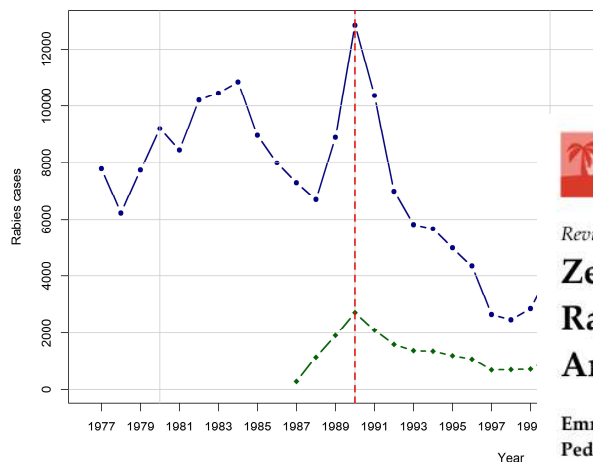
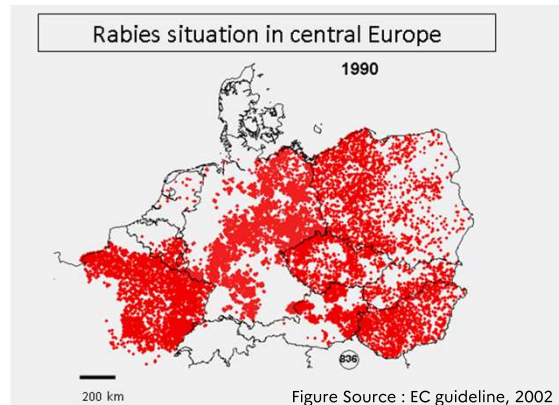
	FAT	RTCIT	MIT	RT-PCR	Real-time
Total UE (n analyses)	23026	1665	0	237	2765
Total (%)	83%	6%	0%	1%	10%
Total All (n analyses)	35529	1748	2767	299	2924
Total (%)	82%	4%	6%	1%	7%
Total All (n countries)	32	9	4	9	23
Total (%)	89%	25%	11%	25%	64%

Data based on annual EURL survey, 2024 NRLs data



Robardet et al., 2021

RABIES HISTORY IN WESTERN AND CENTRAL EUROPE



Review

Zero Endemic Cases of Wildlife Rabies (Classical Rabies Virus, RABV) in the European Union by 2020: An Achievable Goal

Emmanuelle Robardet ^{1,*}, Dean Bosnjak ², Lena Englund ², Panayiotis Demetriou ², Pedro Rosado Martín ² and Florence Cliquet ¹



BACKGROUND: INCREASE OF CASES SINCE 2021



An area with no rabies cases since 14 years...

gov.pl | Serwis Rzeczypospolitej Polskiej

Strona główna
Rada Ministrów
Kancelaria Premiera
Ministerstwa
Urzędy, instytucje i placówki RP

Usługi dla obywatela
Usługi dla przedsiębiorcy
Usługi dla urzędnika
Usługi dla rolnika

Profil zaufany
Baza wiedzy
Serwis Służby Cywilnej
Сайт для громадян України
-Serwis dla obywateli Ukrainy

Mazowiecki Urząd Wojewódzki w Warszawie

O urzędzie Co robimy Złatw Sprawę Aktualności Kontakt

Przypadki wścieklizny u zwierząt na terenie województwa mazowieckiego w 2021 r.

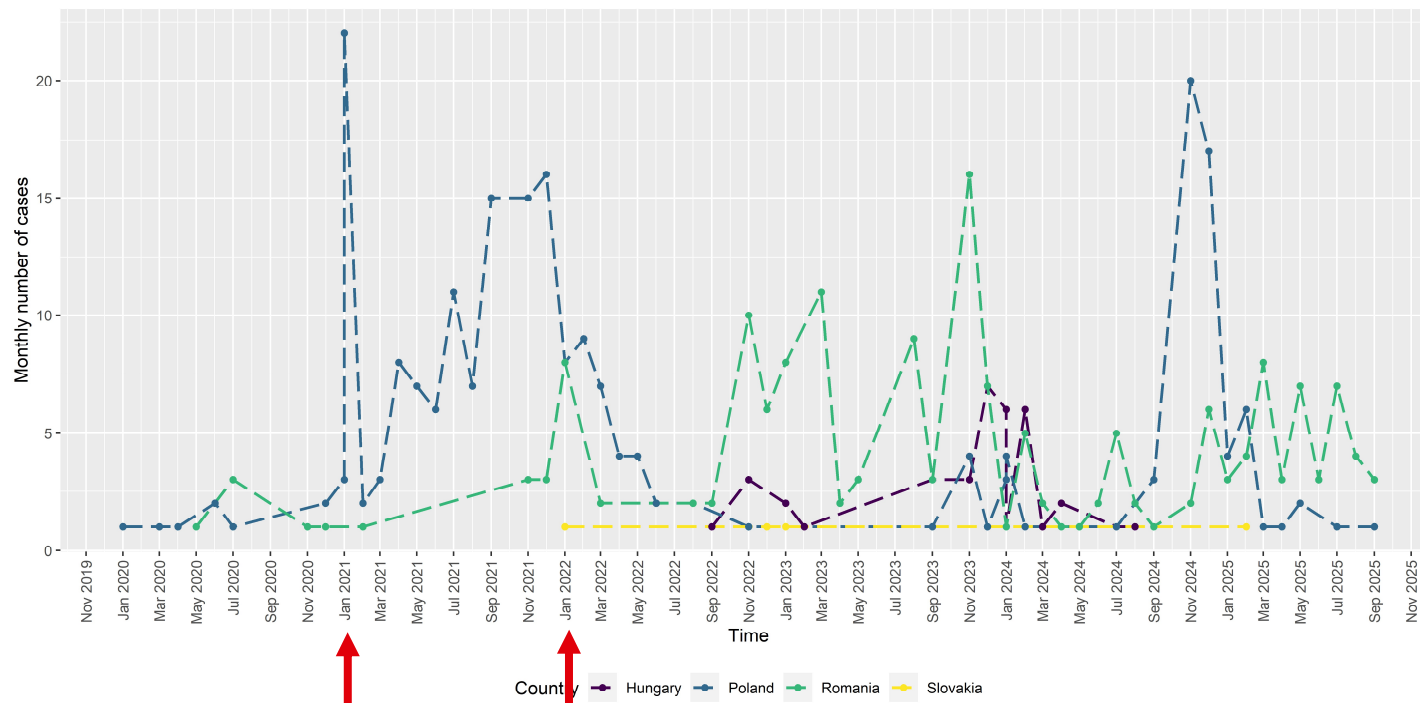
[Powrót](#)

Przypadki wścieklizny u zwierząt na terenie województwa mazowieckiego w 2021 r.

31.12.2021

Mazowiecki Wojewódzki Lekarz Weterynarii poinformował o wykryciu w sumie 110. przypadków wścieklizny u zwierząt na terenie województwa mazowieckiego w 2021 r. Najwięcej przypadków wścieklizny odnotowano u lisów - 93. Przypadki wścieklizny stwierdzano również u kotów - 7, psów - 3, jenotów - 2, saren - 2, a także po jednym przypadku u kuny, kuny domowej i nietoperza. Najwięcej przypadków wścieklizny wykryto w powiecie otwockim - 50.

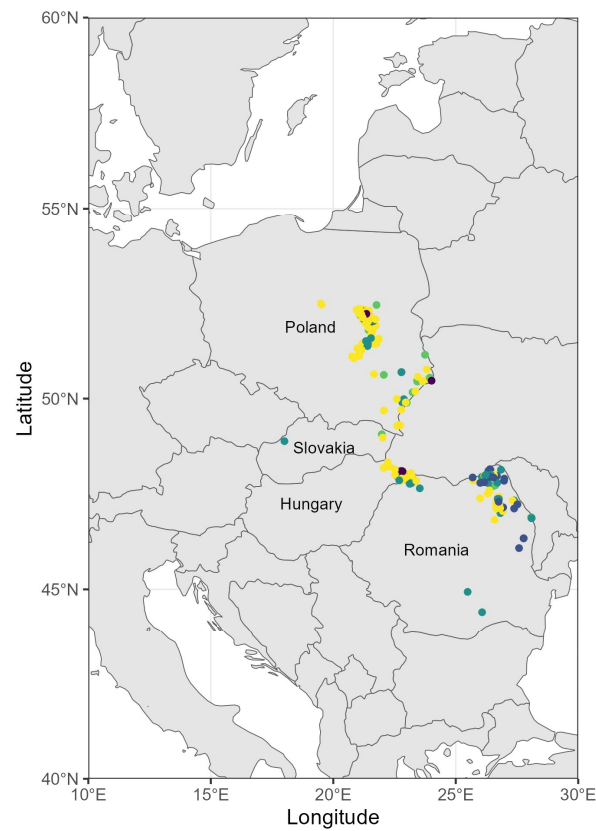
EVOLUTION OF THE NUMBER OF DETECTED CASES



Data source: ADIS (EC database); Data from EU countries only

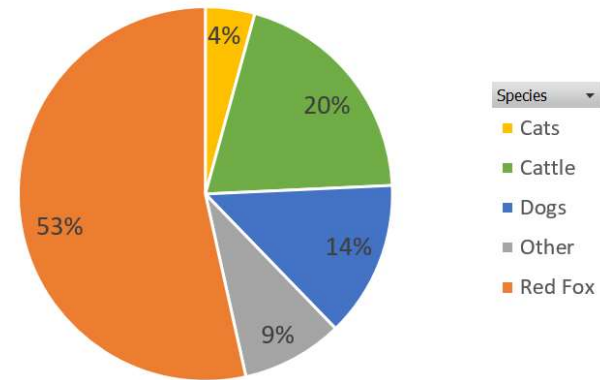
2022: Last cases 7 years ago for Slovakia and 5 years ago for Hungary

INFECTED SPECIES (2020-SEPT 2025)



Species

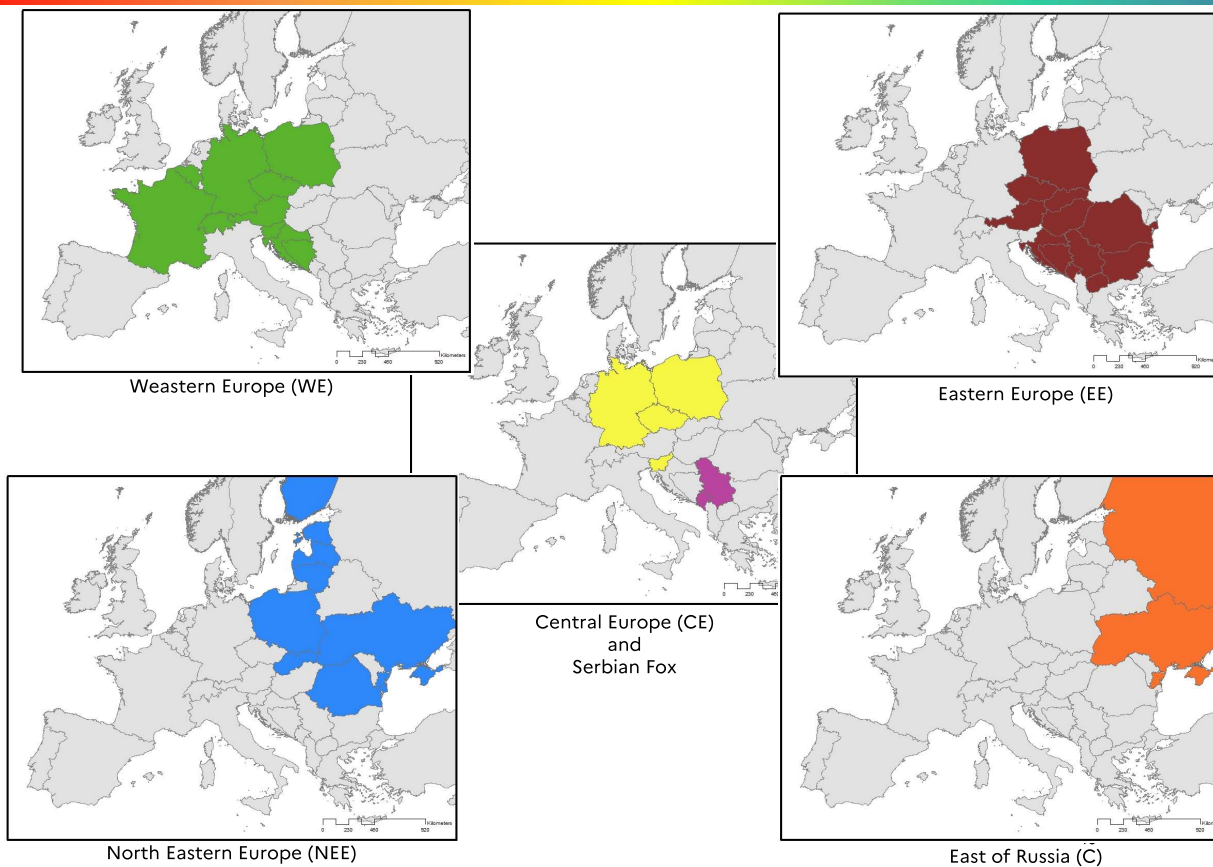
- Cats
- Cattle
- Dogs
- Other
- Red Fox



53% of positive cases are foxes

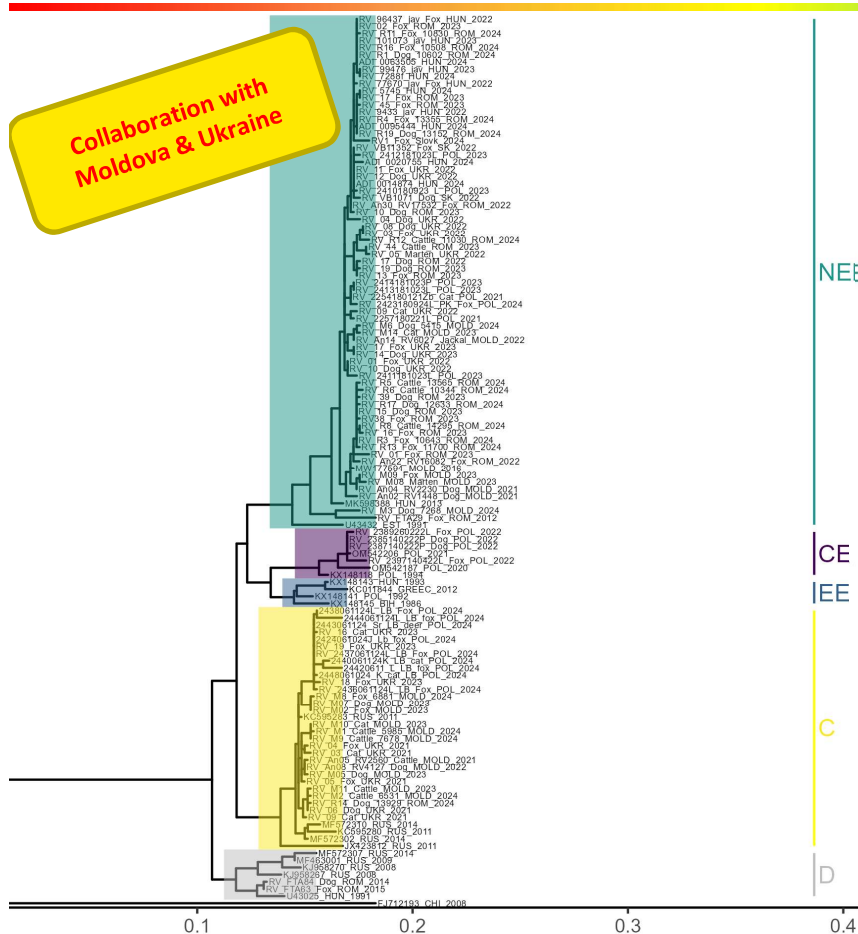
Data source: ADIS (EC database)
Data from EU countries only

PHYLOGROUPS DESCRIBED IN THE LITERATURE



Bourhy et al., 1999; Kuzmin et al., 2004; Picard et al., 2012; etc.

PHYLOGENETIC STUDY OF THE CASES (2021-2024)



Molecular analysis:

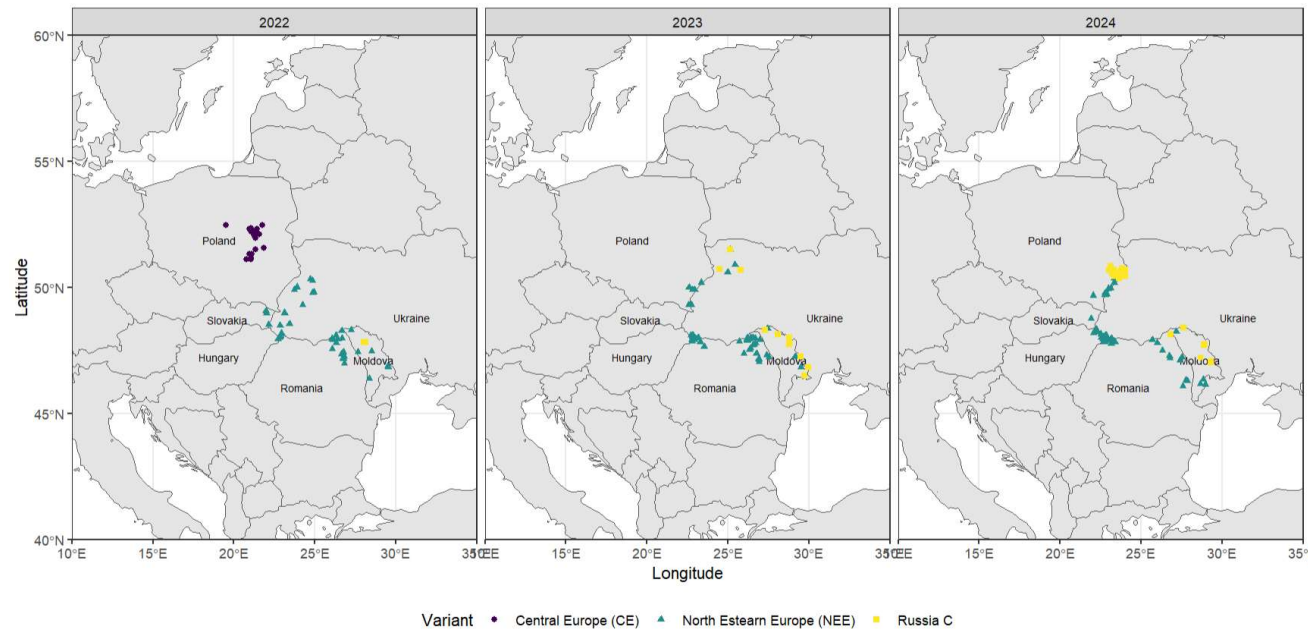
- Full N gene (1353-bp)
- hnRT-PCR-pan Lyssavirus primers (Laboratory techniques in rabies, 2018)
- SANGER sequencing

Sequences included in the analysis:

- Representative of the 5 European phylogroups (Gen Bank)
- Representative of infected countries (Gen Bank)
- 2021-2024 strains from infected countries
- Ukrainian strains from 2021-2023 and Moldavian strains from 2021-2024 (this study)

To be continued...

PHYLOGENETIC GROUPS DISTRIBUTION (2021-2024)

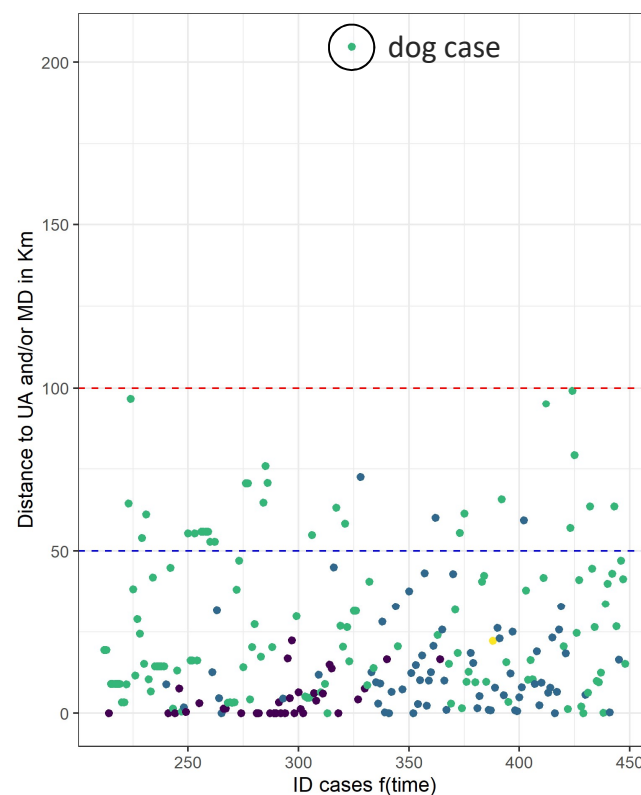


Distinct emergences:

- CE in Poland (2021-2022) and
- NEE in Poland (2022-2024), Slovakia (2022), Hungary (2022-2024), continuously in Romania, Ukraine and Moldova,
- C predominant in Poland, in Ukraine and in Moldova (2024) and detected in Romania¹² (2024).

24/09/2025

DISTANCE OF CASES TO EU BORDERS 2023- SEPT 2025



Km Interval	Frequency	Cumulative
[0,10)	43%	43%
[10,20)	21%	63%
[20,30)	11%	74%
[30,40)	5%	79%
[40,50)	7%	86%
[50,60)	6%	92%
[60,70)	4%	96%
[70,80)	3%	98%
[80,90)	0%	98%
[90,100)	1%	100%
[100,110)	0%	100%

DISCUSSION



- The re-emergence of the **NEE phylogroup** in Hungary, Slovakia and Poland (2022 to now), and first detection of the **C phylogroup** in Poland and Romania (2024), illustrate the continuous infection pressure from the East and are a reminder of the importance of maintaining continuous Oral Rabies Vaccination (ORV) programmes and a sufficiently broad immune belt along endemic neighboring countries.
- Close collaboration between countries (NRLs, Vet services) is of paramount importance to follow-up the situation.
- ORV programmes implemented **BUT discontinued in some areas:**
 - ⊗ In Romania, no ORV in 2021, no spring campaigns since 2021. Manual distribution since 2021. No ORV at all in 2025. Human case in 2025
 - ⊗ In Moldova, no ORV in spring 2021 and 2023. Manual ORV since 2023.
 - ⊗ In Ukraine, no spring campaign in 2021, no ORV in 2022. ORV in some regions in 2023 (4 regions covered manually) in 2024 (14 regions covered manually) and in 2025 (21 regions covered manually). Six Human cases since 2022.
- The situation remains therefore very fragile. Maintaining appropriate surveillance efforts, and regular and relevant ORV implementation remain the key.

ACKNOWLEDGMENTS



- Financing : European Commission (DG-SANTE), NRL Rabies from Hungary, Poland, Romania and Slovakia.
- The Anses staff involved in this study, J.L. Schereffer and C. Carvalho for carrying out the molecular analysis.
- The Rabies NRLs of Poland, Hungary, Slovakia, Romania, Ukraine and Moldavia for sharing samples and/or sequences and for their active collaboration.



to contact us:
rabies.eu-rl@anses.fr