

Measures to prevent rabies resurgence in the EU



Dr Florence Cliquet



Nancy Laboratory
for Rabies and Wildlife



WHO Collaborating Centre
for Research and Management
in Zoonoses Control

WOAH Reference Laboratory
for Rabies

Reference Centre



World Organisation
for Animal Health
Founded as OIE

WOAH Reference Laboratory
for Rabies



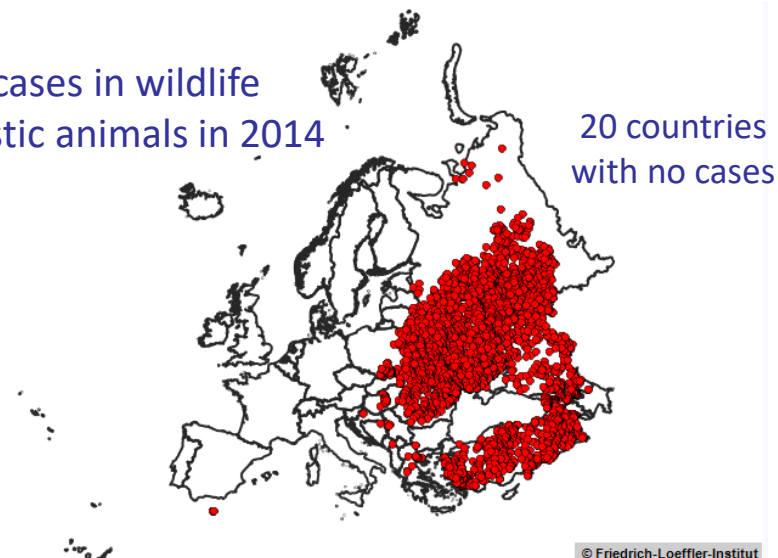
European Union
Reference Laboratory
for Rabies

First GF-TADs Regional Conference of Standing Groups of Experts on priority transboundary animal diseases in the European region, Belgrade, Serbia, 23 – 25 September 2025

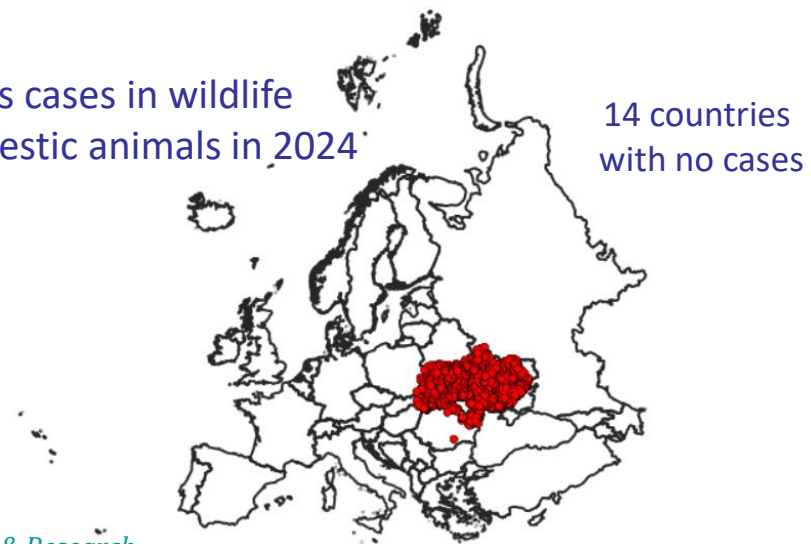
RABIES LISTED IN EU PROGRAMMES FOR ERADICATION, CONTROL AND SURVEILLANCE

- EU is close to rabies elimination. Control programmes implemented in Member States have demonstrated how powerful is the method for rabies control and elimination in wild animals, in use since 1978.
- Historically rabies free countries; Countries becoming free as a result of control measures; Countries still infected.
- 11 programmes for rabies actually submitted by Member States. Most of them are rabies-free from infection with RABV (Commission Implementing Regulation (EU) 2021/620).

Rabies cases in wildlife and domestic animals in 2014



Rabies cases in wildlife and domestic animals in 2024



Sources: : [Rabies - Bulletin - Europe / WHO Collaborating Centre for Rabies Surveillance & Research](#); Regulation (EU) No 652/2014; EC Decision 2017/3524; Implementing Regulation (EU) 2018/1882; Regulation (EU) 2016/429; Working document SANTE/2021/10502; Commission Delegated Regulation (EU) 2020/689

CHALLENGES

The elimination of fox rabies from Europe: determinants of success and lessons for the future

Conrad M. Freuling^{1,†}, Katie Hampson^{2,†}, Thomas Selhorst^{3,†},
Ronald Schröder³, Francois X. Meslin⁴, Thomas C. Mettenleiter¹
and Thomas Müller¹

Tackling the Threat of Rabies Reintroduction in Europe

Santiago Vega^{1†}, Laura Lorenzo-Rebenaque^{1†}, Clara Marin^{1††}, Rosana Domingo¹ and
Fernando Fariñas^{2†}

Rabies in Europe: what are the risks?

Florence Cliquet , Evelyne Picard-Meyer & Emmanuelle Robardet
Pages 905-908 | Published online: 22 May 2014

Rabies control in Europe: an overview of past, current and future strategies

T.F. Müller* & C.M. Freuling

PERSPECTIVE

Prevention of human rabies: a challenge for the European Union and the European Economic Area

Céline M Gossner¹, Alexandra Mailles², Inma Aznar³, Elina Dimina⁴, Juan E Echevarría^{5,6}, Siri Laura Feruglio⁷, Heidi Lange⁷,
Francesco Paolo Maraglino⁸, Patrizia Parodi⁸, Jurijs Perevoscikovs⁴, Yves Van der Stede³, Tamás Bakonyi¹

1. European Centre for Disease Prevention and Control (ECDC), Stockholm, Sweden

2. Centre for Rabies Control, Saint-Maurice, France

3. Centre for Rabies Control, Saint-Maurice, France

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6. Centre for Rabies Control, Saint-Maurice, France

7. Centre for Rabies Control, Saint-Maurice, France

8. Centre for Rabies Control, Saint-Maurice, France

Means used for terrestrial rabies elimination in France and policy for rabies surveillance in case of re-emergence

F Cliquet¹, B Combes, J Barrat

Travel-Associated Rabies in Pets and Residual Rabies Risk, Western Europe

Florence Ribadeau-Dumas, Florence Cliquet,
Philippe Gautret, Emmanuelle Robardet,
Claude Le Pen, Hervé Bourhy

During 2001–2013, a total of 21 animal rabies cases attributed to pets from rabies-enzootic countries were reported in western Europe (<https://zenodo.org/record/49670#>), which represented 1.6 pets/year and 23 days/year of no-

CONTROL OF PET MOVEMENTS - IMPORTED RABIES CASES

No dog-mediated rabies in Europe (except in Turkey)

- Many pets (cats and dogs) for non-commercial movements moved into EU from non-EU countries (Regulation EU/576/2013). There are no officially available data for the number of pet movements into the EU each year.
- For the period 2012–2024, 10 dogs and one cat incubating rabies were imported into the EU from non-EU countries (average importation frequency of rabid dogs into the EU of one case every year).
- In 2008, France lost its rabies-free status for 2 years due to secondary cases after illegal importation of a rabid dog.
- In 2019, 4 imported human rabies cases reported in Latvia, Spain, Italy, and Norway (disease contracted through a dog or cat bite while travelling in endemic areas, i.e. in India, Morocco, Tanzania, and Philippines, respectively). In 2023, one imported human rabies case in France from Morocco.



Journal of Travel Medicine, 2025, Vol. 32, No. 2, taae146
<https://doi.org/10.1093/jtm/taae146>
Letter to the Editor

Letter to the Editor

The challenges of imported rabid animals to rabies-free and rabies-eliminating countries

Submitted 16 October 2024; Revised 4 November 2024; Editorial Decision 6 November 2024; Accepted 14 November 2024

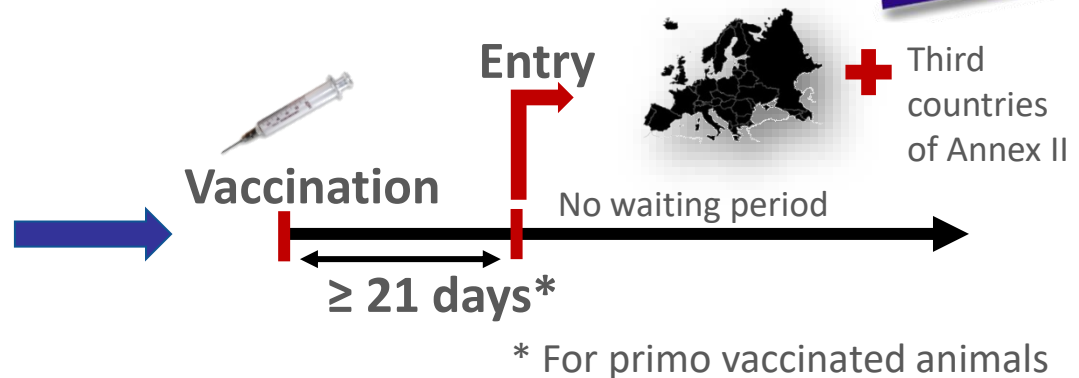
Source: Cliquet *et al.*, 2014; EFSA, 2022 (<https://www.efsa.europa.eu/en/efsajournal/pub/7350>); ECDC, 2019 (<https://www.ecdc.europa.eu/en/news-events/fourth-travel-related-rabies-case-reported-eu-2019>); Napp *et al.*, 2010; Jones *et al.*, 2005; Hudson *et al.*, 2017; Braga *et al.*, 2014

PET MOVEMENTS FOR ENTERING EU AND WITHIN MEMBER STATES

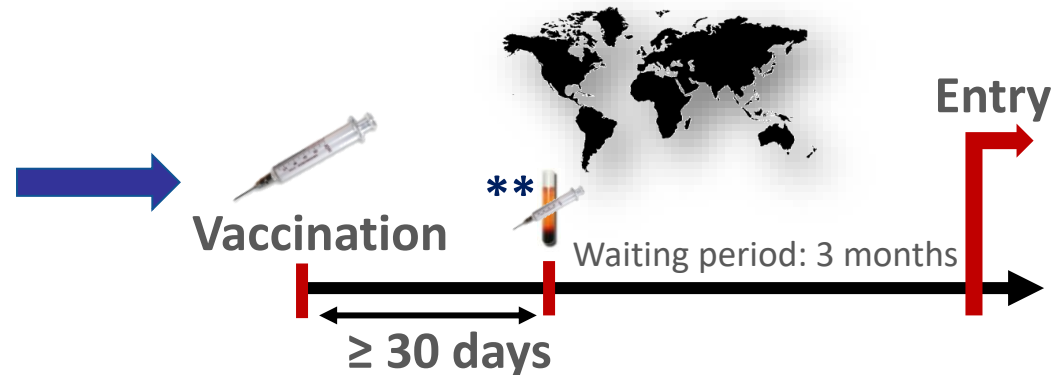
Requirements: Microchip, vaccination against rabies, rabies antibody testing, waiting period, border checks



- Applicable for pets moved between Member States and for those coming from a third country listed in Annex II to the Regulation (Reg. (EU) No 577/2013)



- Applicable for pets entering Member States and coming from a third country not listed in Annex II to the Regulation. (Reg. (EU) No 577/2013)



** Positive titre: $\geq 0.5\text{IU/mL}$

Sources: : Regulation (EU) N° 576/2013; Commission Implementing Regulation (EU) N° 577/2013

OTHER IMPORT POLICY MEASURES

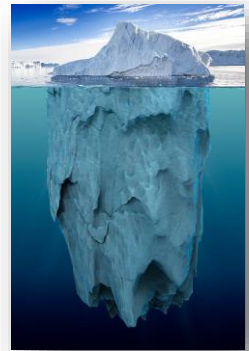
- Depending on country legislations, and irrespectively to rabies situation, **vaccination of pets may remain compulsory.**
- Depending on country legislations, management of biting animals and illegal imported pets (quarantine), surveillance measures in case of rabies suspicion as well as management of free roaming dogs.
- **Awareness** of the general public and regular trainings of different stakeholders relating to rabies disease; risks for the travelers and importance of preventive vaccination for tourists visiting certain countries.
- Reinforcement of border surveillance at the entry points.



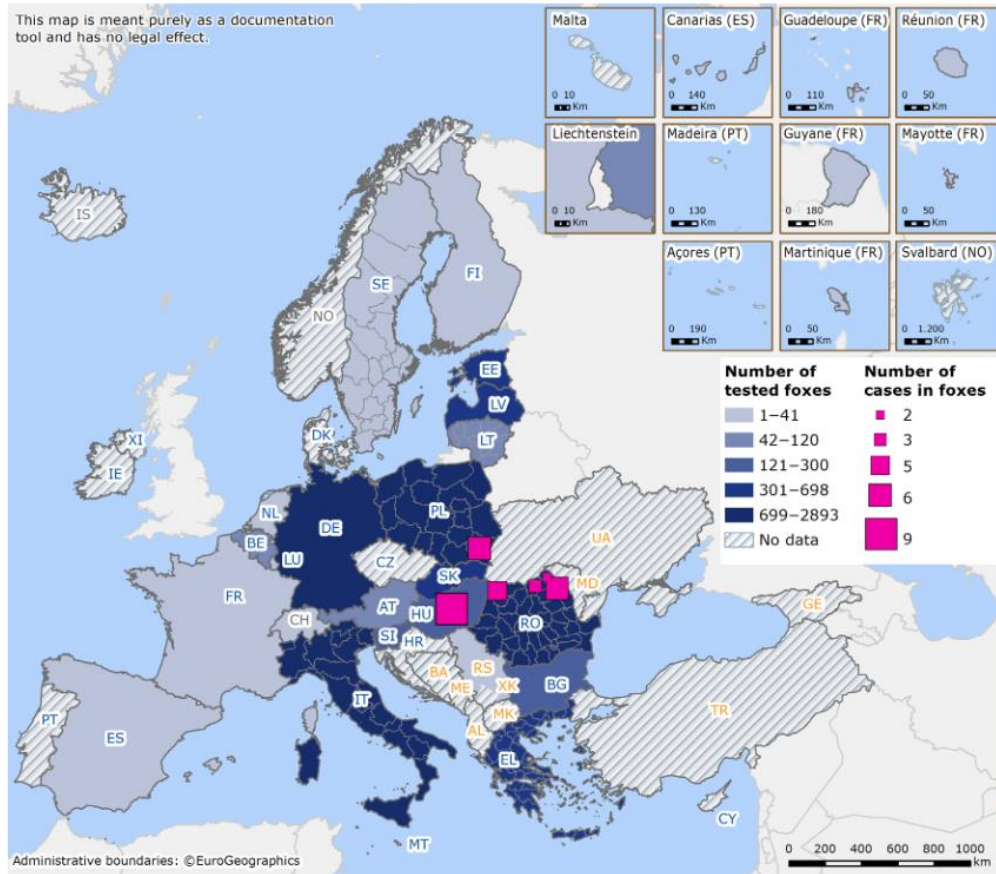
PASSIVE SURVEILLANCE AND REPORTING REMAIN PIVOTAL IN THE EU

- A positive case detected in an autochthonous domestic animal means that rabies virus is circulating in wildlife in an area close to this case.
- The clinical signs of rabies in all animals, particularly in domestic animals, may be a sensitive means of detecting suspect rabies cases. Surveillance targets high-risk animals, i.e. that are biting, behaving strangely, morbid or found dead.
- Surveillance in wildlife remains crucial, and found dead including road-killed may be considered in particular in at risk areas. It allows :
 - Disease detection at the source, even when rabies has apparently been eliminated.
 - Early responses to manage the situation for implementing control measures.
 - A good surveillance quality for demonstrating and maintaining the rabies-free status.

In a context of disappearance of the disease, information and reporting on negative tested samples appear as crucial.



SURVEILLANCE PUBLIC DATA ON NEGATIVE SAMPLES TESTED FOR RABIES FOXES (EFSA 2023) – WILDLIFE (RABIES BULLETIN EUROPE, 2023)



	Wildlife	Domestic animals	Total
Austria	126	36	162
Belgium	127	43	170
Croatia	1659	122	1781
Cyprus	0	1	1
Czech Republic	2612	105	2717
Denmark	0	1	1
Estonia	1138	19	1157
Finland	486	21	507
France	33	1329	1362
Greece	705	30	735
Hungary	408	593	1001
Ireland	0	1	1
Italy	2746	240	2986
Latvia	983	16	999
Liechtenstein	2	1	3
Poland	2249	1508	3757
Portugal	0	2	2
Serbia	13	39	52
Slovak Republic	839	150	989
Slovenia	490	40	530
Spain	4	57	61
Switzerland	7	28	35
The Netherlands	5	7	12
Ukraine	1865	2000	3865
Total	16497	6389	22886

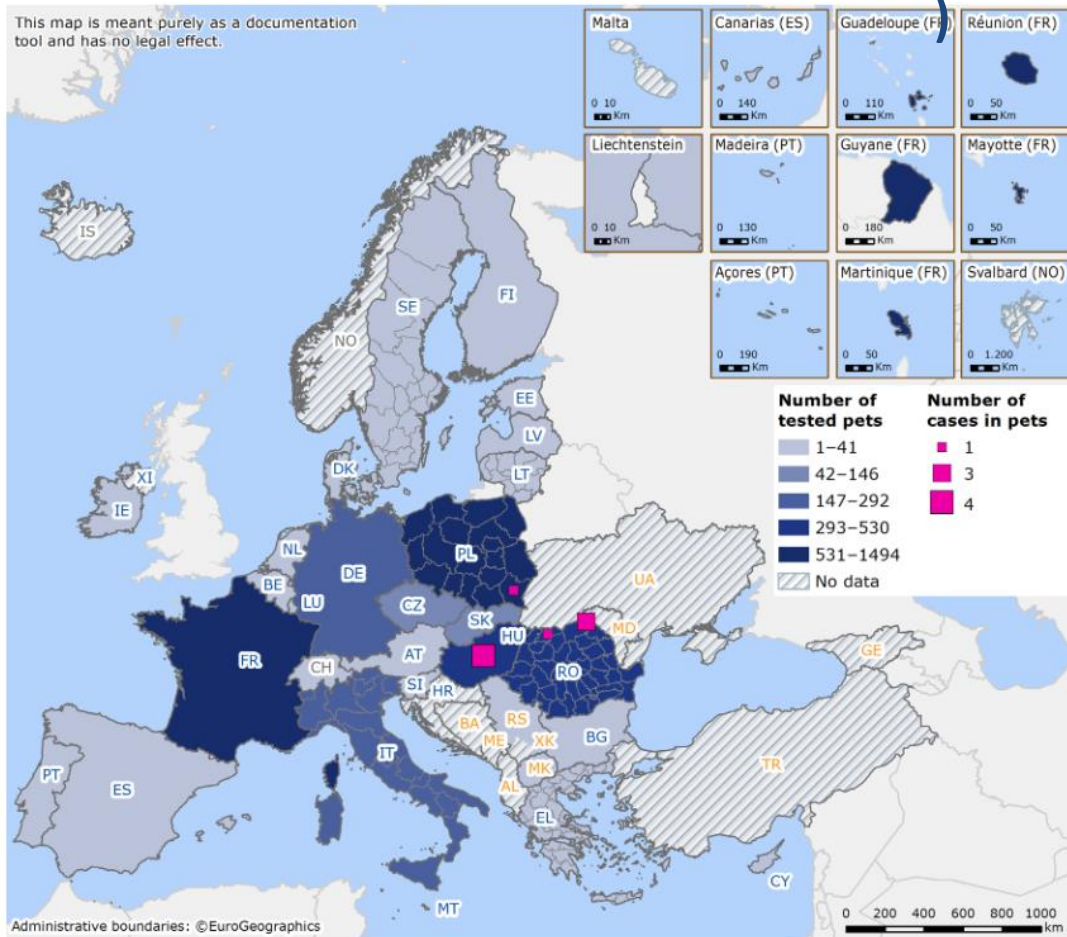
Number of tested and positive foxes in the framework of passive surveillance and the geographical distribution of the rabies cases reported in foxes in EU MSs and non-EU countries, 2023.

For Hungary, the geographical distribution of reported cases was not provided. EU MSs and the United Kingdom (Northern Ireland) were represented with a blue label, the EFTA/EEA countries were represented with a grey label, and all the candidate countries were represented with an orange label. The designation of Kosovo is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

Sources: : <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2024.9106>; <https://www.who-rabies-bulletin.org/site-page/queries>

PUBLIC DATA ON NEGATIVE SAMPLES TESTED FOR RABIES

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PASSIVE SURVEILLANCE

In the whole country – during the whole year

- Assessment of rabies incidence
- Prevention of resurgence
- Disease outbreak



Indicator animals including:
Animals suspected of having rabies
Animals having contaminated human beings

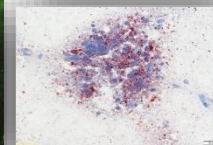
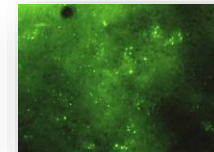


Rabies diagnosis
High chances to detect positive cases

For all countries (infected and rabies- free)

For wild and domestic mammals

- Rabies diagnosis (FAT, dRIT, RTCIT, conventional PCR, Real time PCR)
- Virus typing

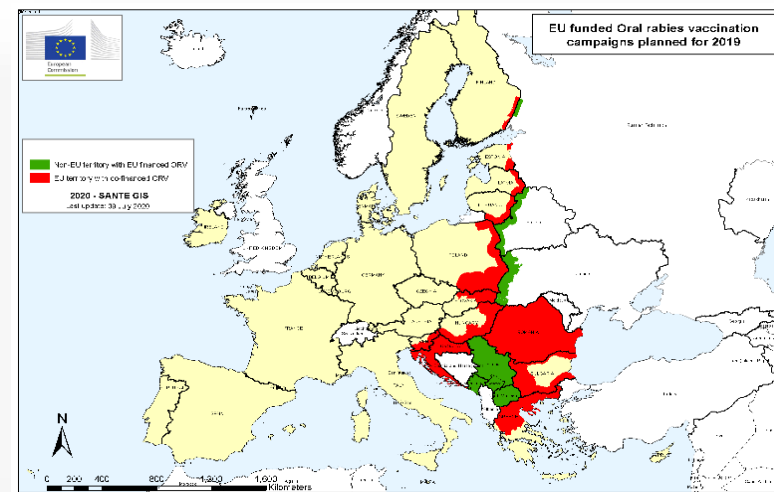


No sample size

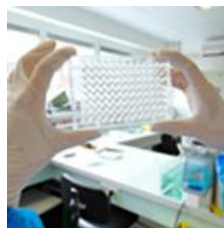
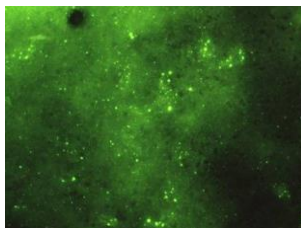
CONTINUATION OF ORV CAMPAIGNS IN THE EU

- In certain rabies-free MS, ORV in common buffer zones (at least 50 km wide) with bordering non-EU countries.
- High rank of priority by the national authorities of infected MS for implementing regular ORV campaigns in the whole infected surface every year and in Spring and in Autumn, with no interruption.
- Involving re-infected MS for implementing again ORV campaigns in certain areas.
- Pursuing ORV two years after the last confirmed case.

Oral vaccination campaigns planned for 2019



Source: Courtesy of Dr Rosado Martins, DG SANTE



Sources: Commission Delegated Regulation (EU) 2020/689, Robardet et al., 2019

ACTIVE SURVEILLANCE (SO CALLED MONITORING) OF ORAL VACCINATION

In vaccinated areas only – after ORV campaigns

For countries (infected and rabies- free) implementing ORV

Evaluation of control strategy efficiency



Hunted foxes, raccoon dogs, jackals
(Healthy animals)



Rabies diagnosis:
very few positive cases

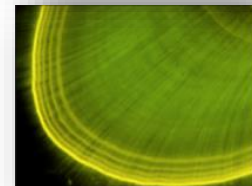


Analysis of rabies antibodies



Analysis of biomarker occurrence

- Seroconversion (ELISA, FAVN test)
- Bait-uptake (Biomarker detection)

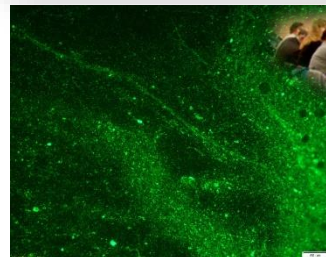
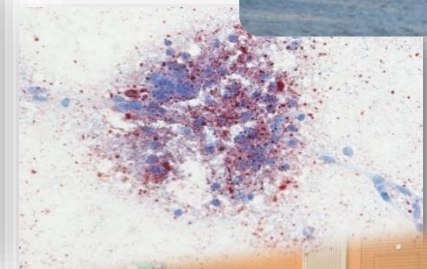
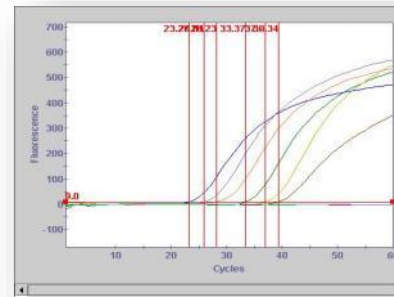
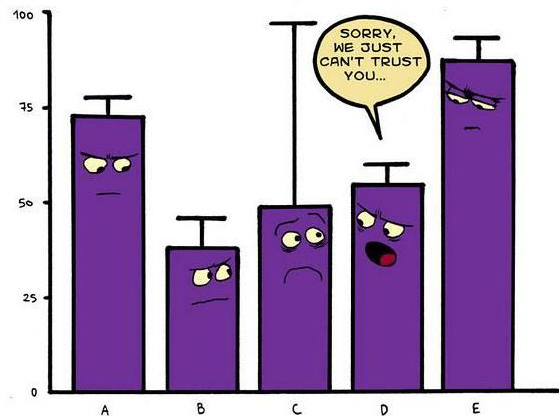


Annual number of 4 foxes per 100 km²

Sources: Guidelines for the Union co-funded programmes of eradication, control and surveillance of animal diseases and zoonoses for the years 2021-2022: EC guidelines, EFSA, 2010; EFSA, 2015

OTHER MEASURES

- **Legal framework** (political priority, budget secured, trained and competent staff, emergency plans in case of resurgence, effective and updated procedures/legislation, etc).
- **Analysis** and reporting of epidemiological data.
- **Maintenance** of the technical and scientific capacity of national reference laboratory for rabies : staff trained and regularly updated, using WOAHA recommended methods.
- **Awareness campaigns** for different stakeholders (veterinarians, hunter associations, public).



CONCLUSION



Irrespective of the status of the EU countries (free or infected):

- Rabies should remain a notifiable disease.
- Appropriate and effective surveillance network in place for both human and animal for early detection and clear chain of command, particular for outbreak management.
- Competence of the stakeholders and NRL for rabies and possibly regional laboratories maintained and updated.
- Pet import policy.
- Communication and awareness of overall public and targeted stakeholders.
- Collaborations with Eastern European countries across political borders.

In addition, for EU countries implementing ORV:

- Design of the areas to be vaccinated and implementation of ORV in Spring and in Autumn.
- Effectiveness of ORV assessed by hunting activities for the monitoring in vaccinated areas.

Greater effort required in the final phase for effectively eliminating the last foci: Depending on the situation, reinforced surveillance for ensuring/proving a reliable/confident assessment of the presence/absence of the virus.



THANK YOU FOR YOUR ATTENTION!

ANSES-NANCY

