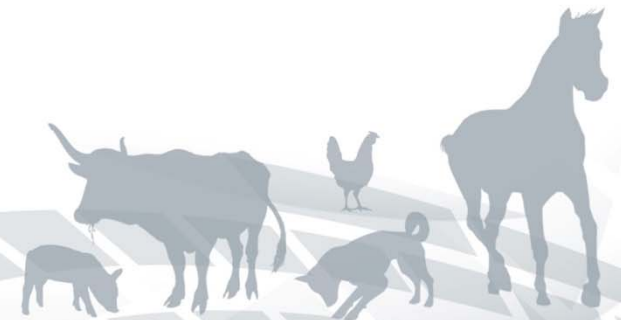




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West Nile Virus circulation in Italy





Contents

- **1998**
the first evidence of WNV in Italy
- **2008-2010**
the current epidemic
- **Usutu virus circulation**



First outbreak in Italy: 1998

- An epidemic of WNV encephalitis occurred in Italy during the late summer 1998 in proximity of Fucecchio marshes, a wetland area in the ValdiNievole Valley, Tuscany;





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First outbreak in Italy: 1998

In late summer 1998 cases of neurological syndromes in horses were notified in Tuscany, in the area named Padule di Fucecchio.

Outbreak summary:

- 8 Horse stables
- 1 Hyppodrome (Montecatini)
- 8 Municipalities
- 14 Horses with clinical symptoms
- 6 Deaths
- NO Disease in humans, 4 Seropositives





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National WND surveillance plan since 2002

In selected risk areas

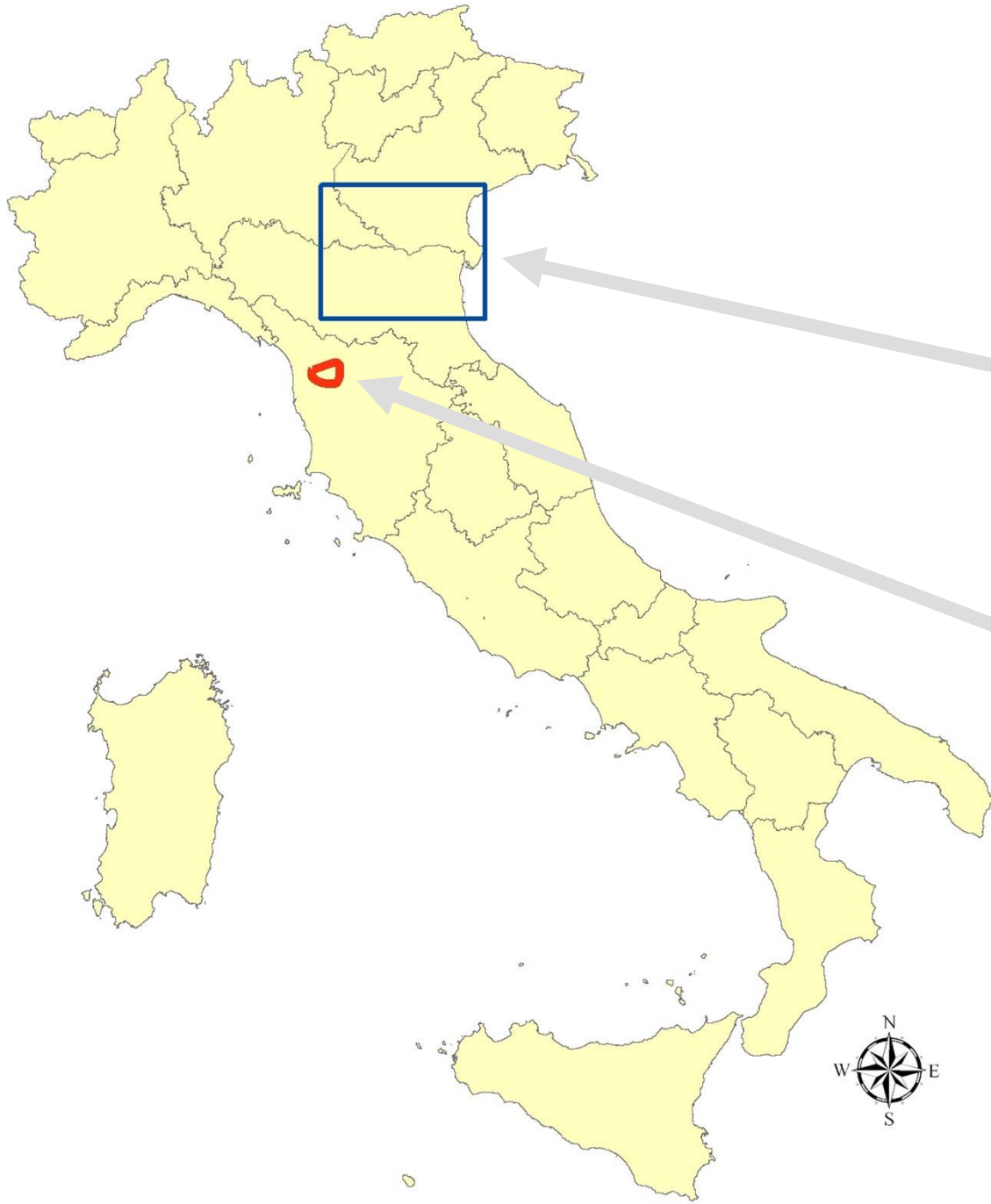
- **Surveillance in horses**
 - ✓ Sentinel horses
- **Surveillance in birds**
 - ✓ Sentinel chickens
 - ✓ Screening on carcasses of birds found dead
- **Entomological surveillance**



2008 outbreak

- After the epidemic in Tuscany, no further WNV clinical outbreaks were observed in Italy until August-September 2008;
- the 20th of August 2008 the first suspicion of West Nile encephalitis in horse stable in Ferrara Province closer to Po river and less than 50 km far from the Comacchio wetlands, one of those at risk areas selected in WNV national surveillance program.





Italian outbreaks

Outbreaks **2008**;

Outbreaks **1998**;



2008 WND epidemic

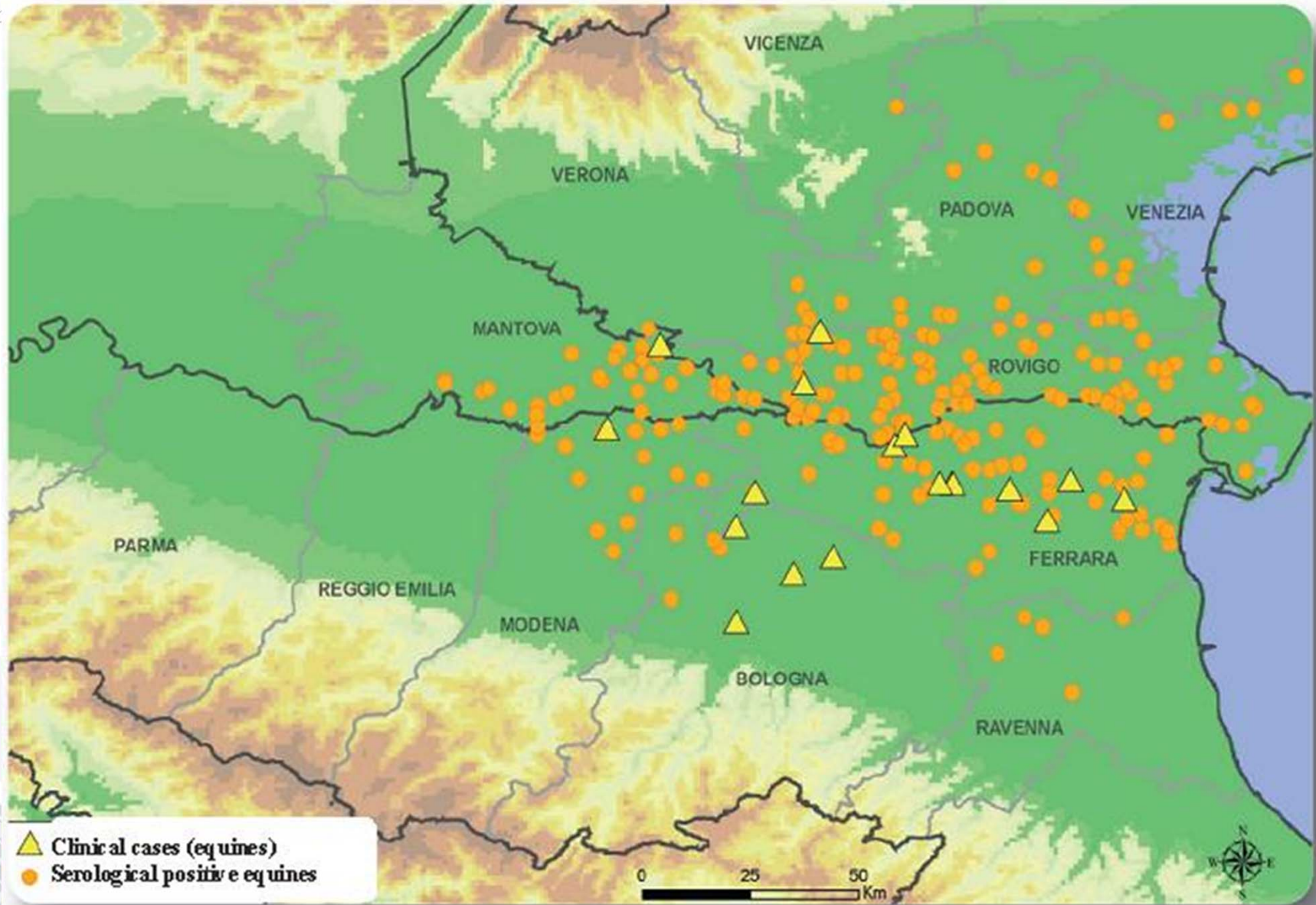
- A total of 18 clinical outbreaks out of a total of 251 WND outbreaks in horse stables
- 4% of infected animals showed clinical signs
- 15.6% case fatality rate



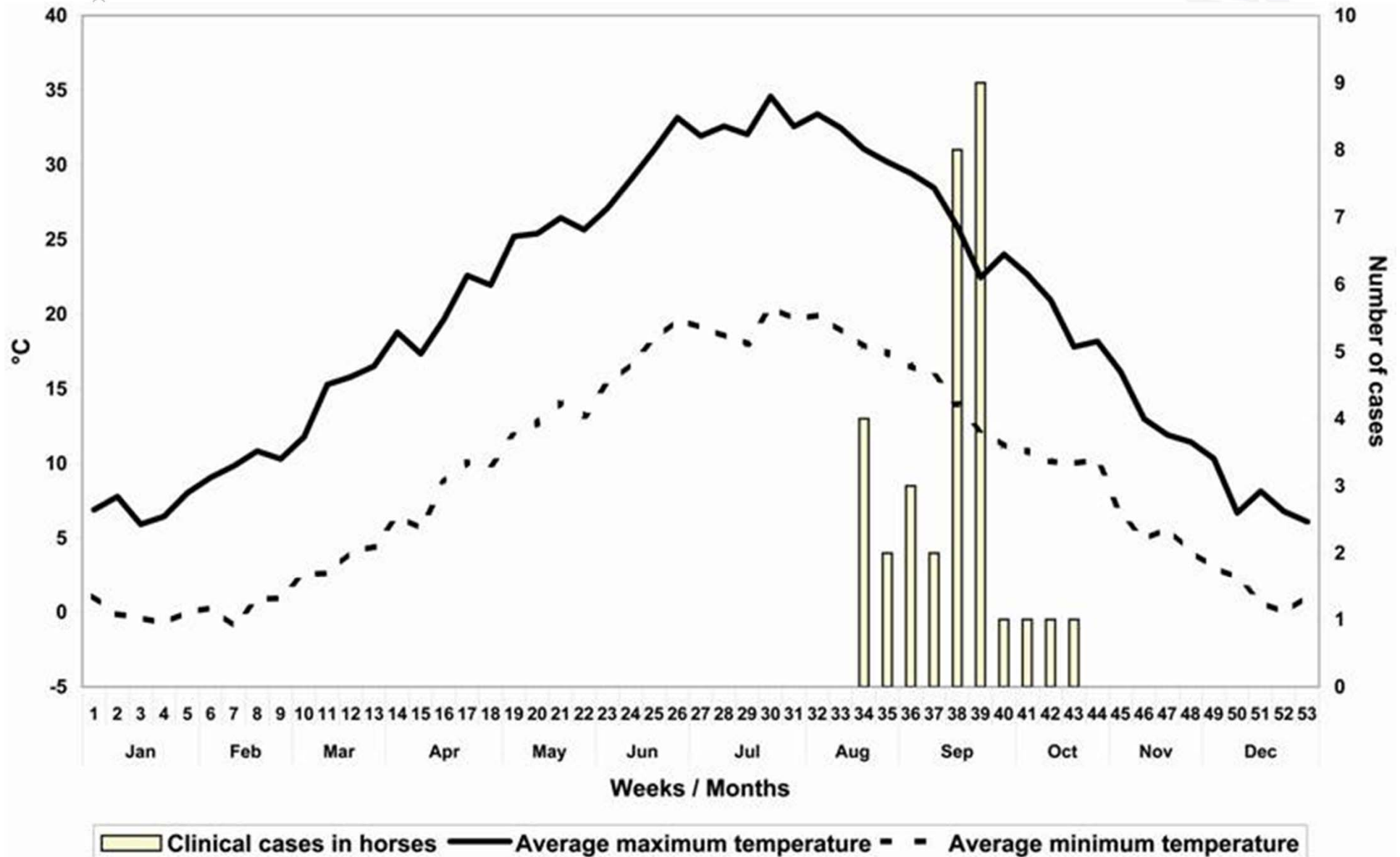


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2008 WND epidemic



2008 WND epidemic



2008 surveillance on birds

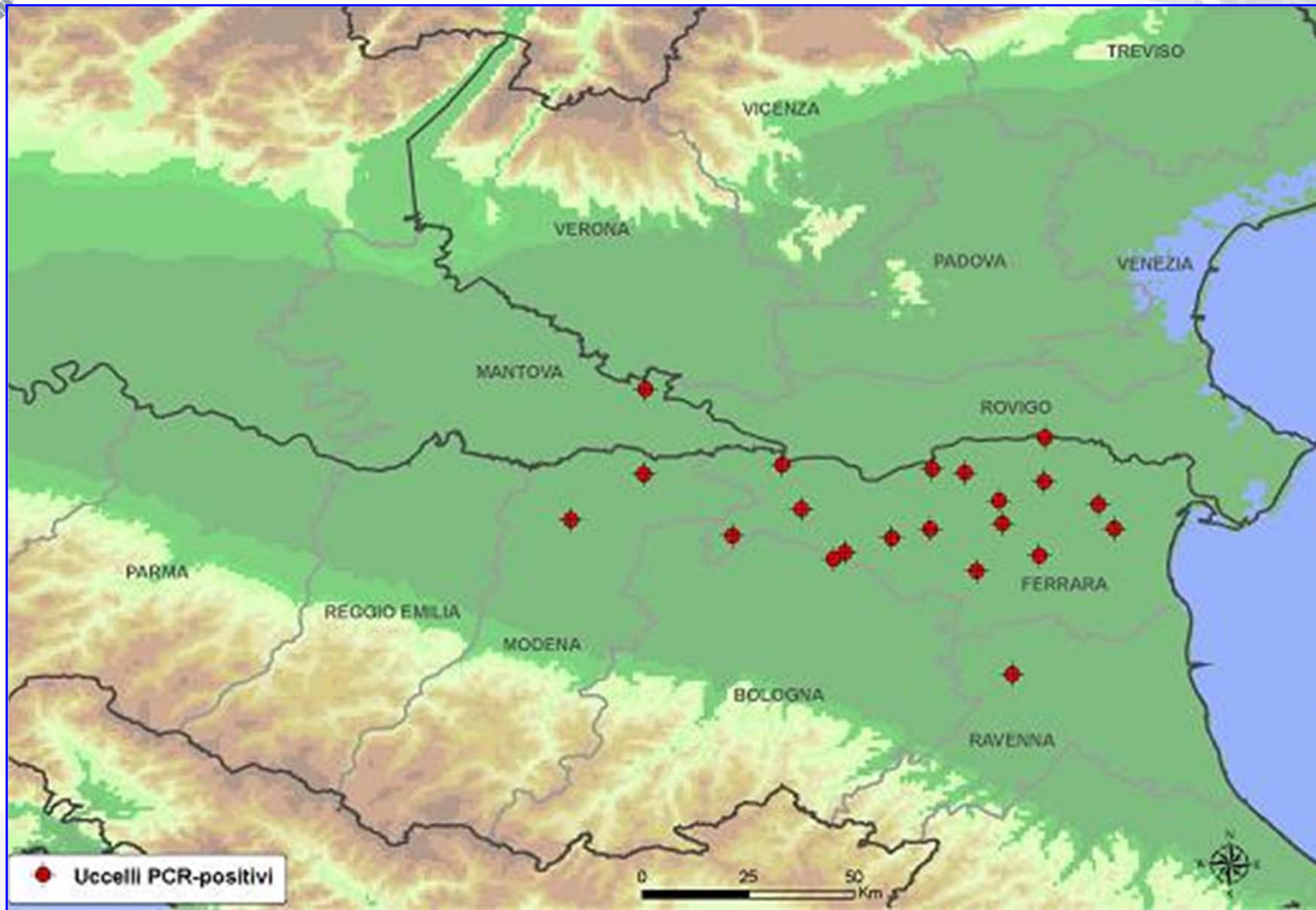
Species	Total		%
	Tested	Positives	
Rock Pigeon (<i>Columba livia</i>)	93	12	12.9 (7.57–21.2)
Cormorant (<i>Phalacrocorax carbo</i>)	7	1	14.3 (3.19–52.7)
Carion Crow (<i>Corvus corone</i>)	95	7	7.4 (3.67–14.4)
Yellow-legged Gull (<i>Larus michahellis</i>)	3	1	33.3 (6.76–80.6)
Magpie (<i>Pica pica</i>)	241	22	9.1 (6.12–13.4)
Eurasian Jay (<i>Garrulus glandarius</i>)	14	2	14.3 (4.33–40.5)
Other species*	37	0	0 (0.0–9.3)
Total	490	45	9.2 (6.94–12.1)





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2008 surveillance on birds



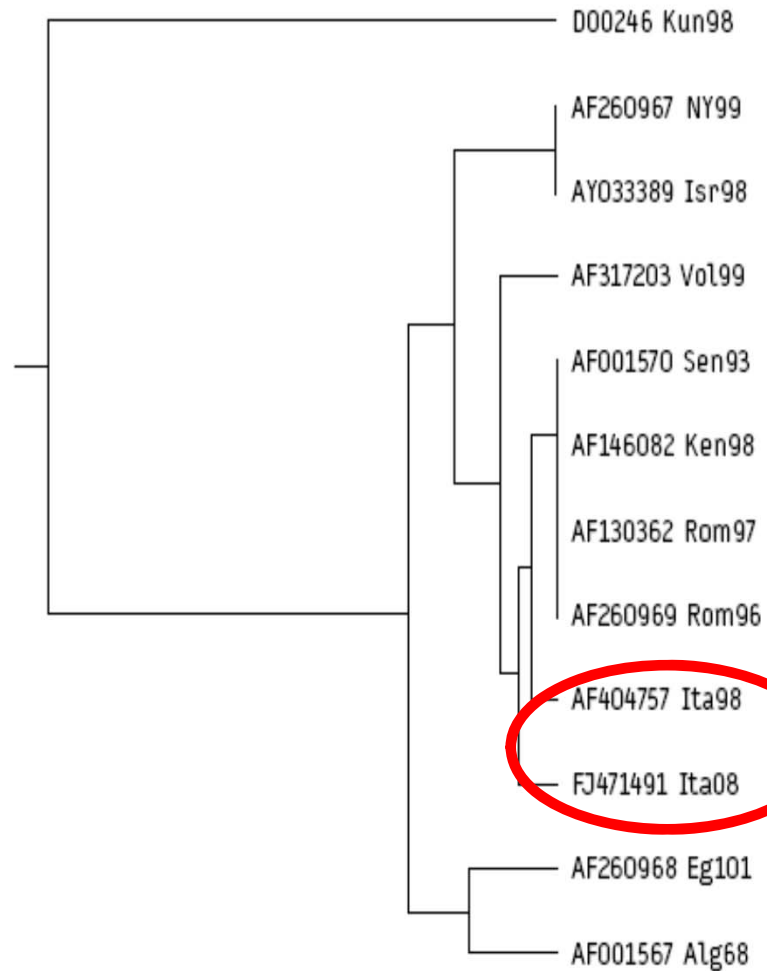


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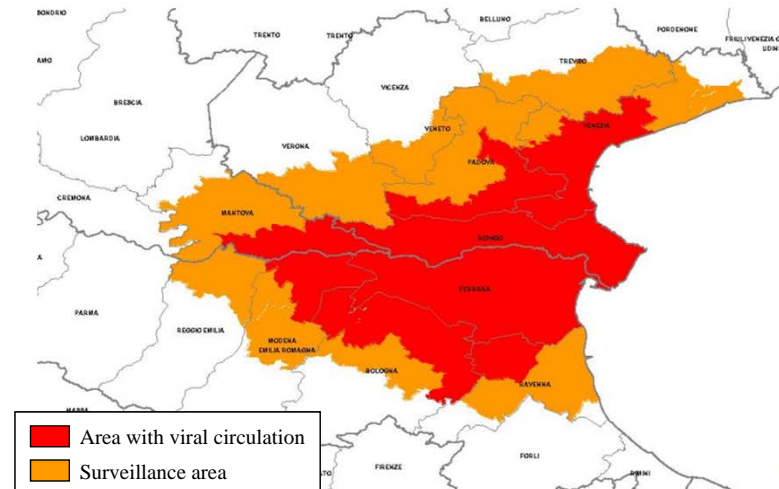
2008 WND epidemic

Phylogenetic Analysis



2009 WND surveillance plan

- 3 Geographical Areas
 - Area with virus circulation in 2008 [AVC]
 - Surveillance Area [SA] (20 km from AVC)
 - Rest of Italy: 15 at risk wetland areas [RA]





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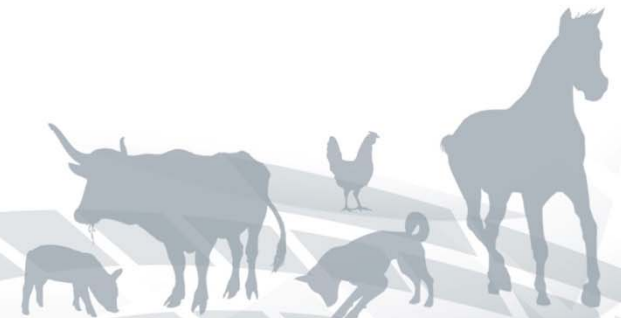
2009 WND surveillance plan

Surveillance on birds

- Resident wild birds (magpies, crows, pigeons)
- Sentinel chicken flocks
- Monitoring of backyard poultry farms

FROM MARCH TO OCTOBER

Applied in AVC, SA and RA





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2009 WND surveillance plan

Surveillance on horses

- Sentinel horses

FROM APRIL TO SEPTEMBER

Applied in SA and RA

- Syndromic surveillance (the whole Italian territory)





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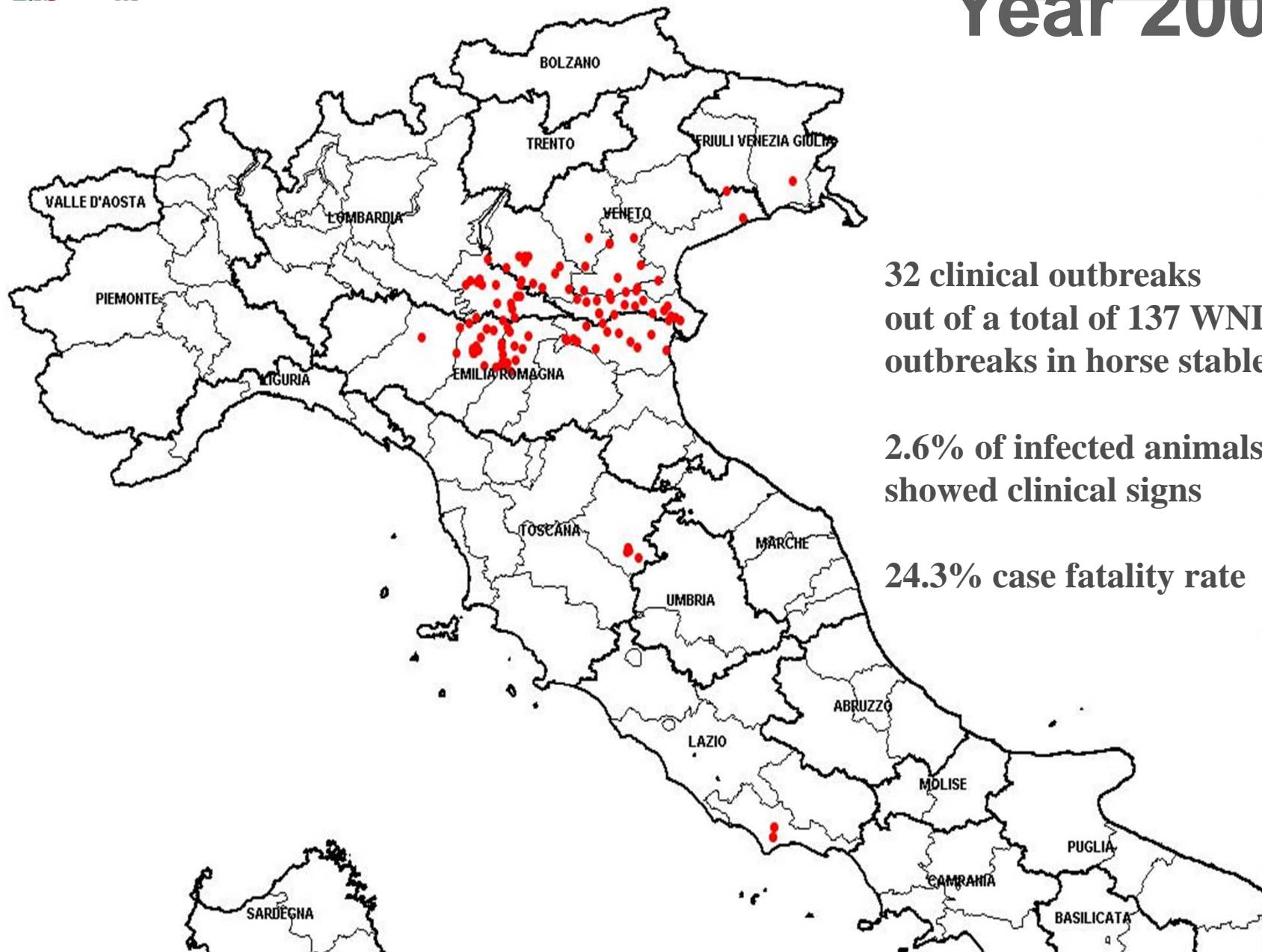
2009 WND surveillance plan Entomological Surveillance

- Trapping in selected horse stables

FROM MARCH TO OCTOBER
Applied in AVC, SA and RA



Year 2009



**32 clinical outbreaks
out of a total of 137 WND
outbreaks in horse stables**

**2.6% of infected animals
showed clinical signs**

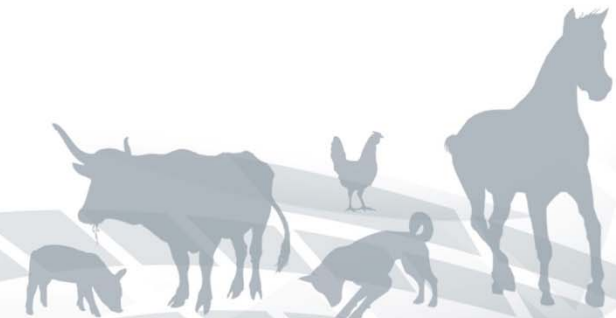
24.3% case fatality rate





Frequency of clinical signs observed in affected horses

Observed clinical signs	Percentage of affected horses with the observed clinical signs
Muscular fasciculation	69.6%
Movement ataxia	60.9%
Paralysis or paresis	47.3%
Depression	39.1%
Propriocept deficiency	26.1%
Inability to maintain the standing position	21.7%
Ptosis of lower lip	17.4%
Circle movements	8.7%
Blindness	8.7%





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2009 surveillance on wild birds

Species	Total		
	Tested	Positives	% (95% c.I.)
Rock Pigeon (<i>Columba livia</i>)	179	0	0% (0.00% - 2.03%)
Carrion Crow (<i>Corvus corone</i>)	721	1	0.14% (0.03% - 0.77%)
Magpie (<i>Pica pica</i>)	1340	11	0.82% (0.46% - 1.46%)
Eurasian Jay (<i>Garrulus glandarius</i>)	60	1	1.67% (0.4% - 8.8%)
Common Starling (<i>Sturnus vulgaris</i>)	28	0	0% (0.00% - 11.94%)
Eurasian Crow (<i>Corvus monedula</i>)	1	0	0% (0.00% - 84.19%)
Total	2329	13	0.56% (0.33% - 0.95%)

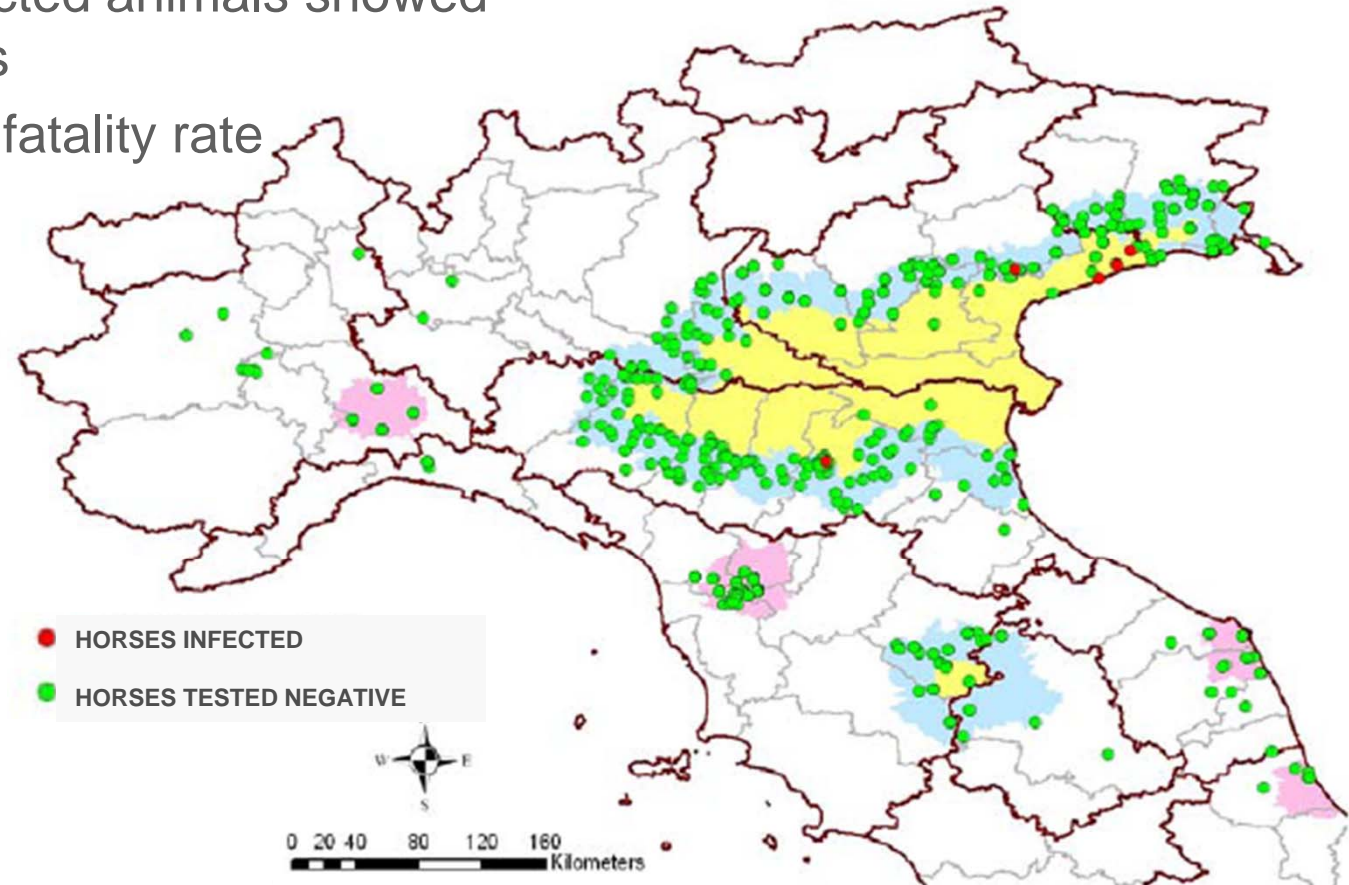




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2010

- 11 clinical outbreaks out of a total of 67 WND outbreaks in horse stables
- 2.6% of infected animals showed clinical signs
- 45.4% case fatality rate

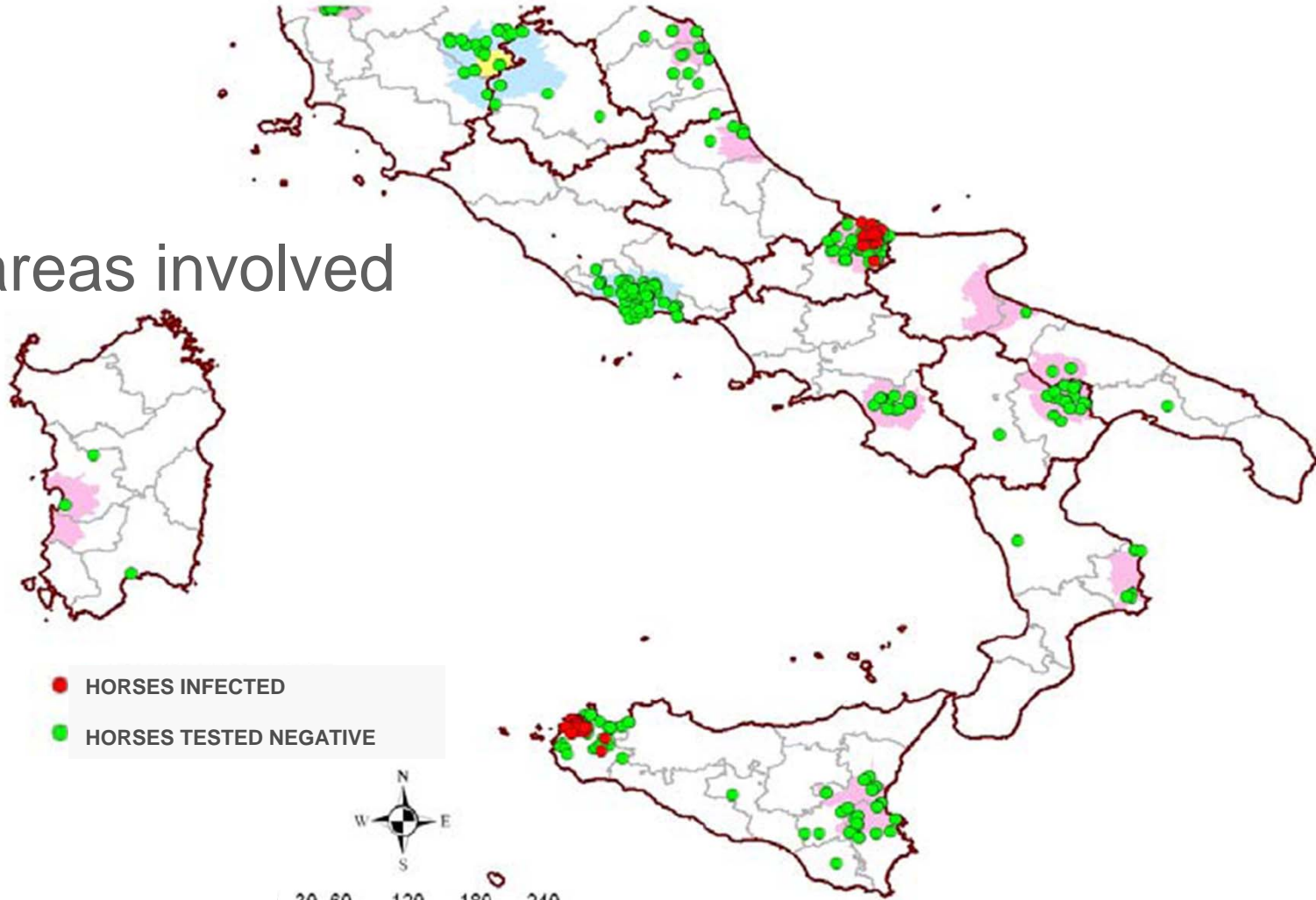




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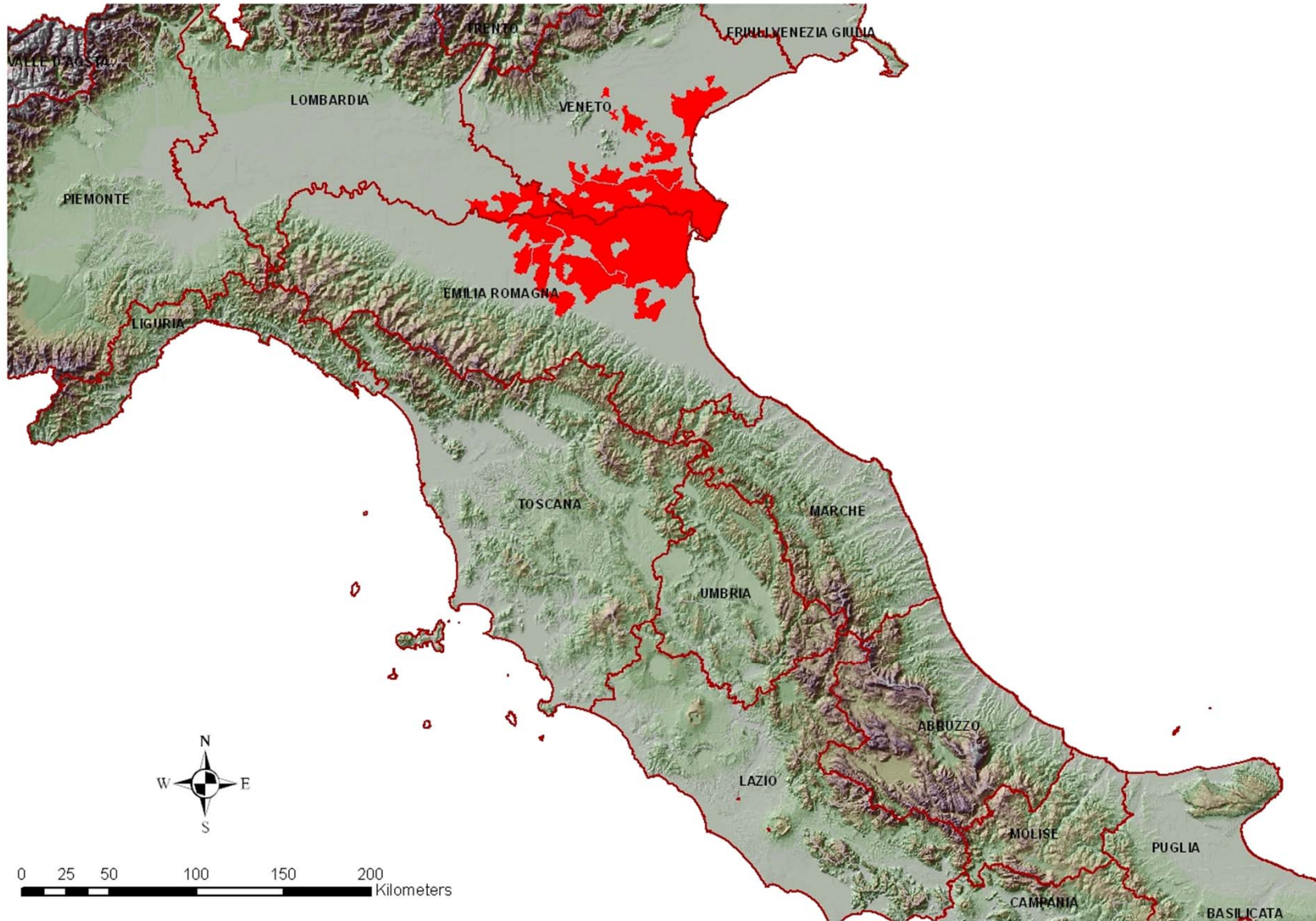
2010

2 new areas involved





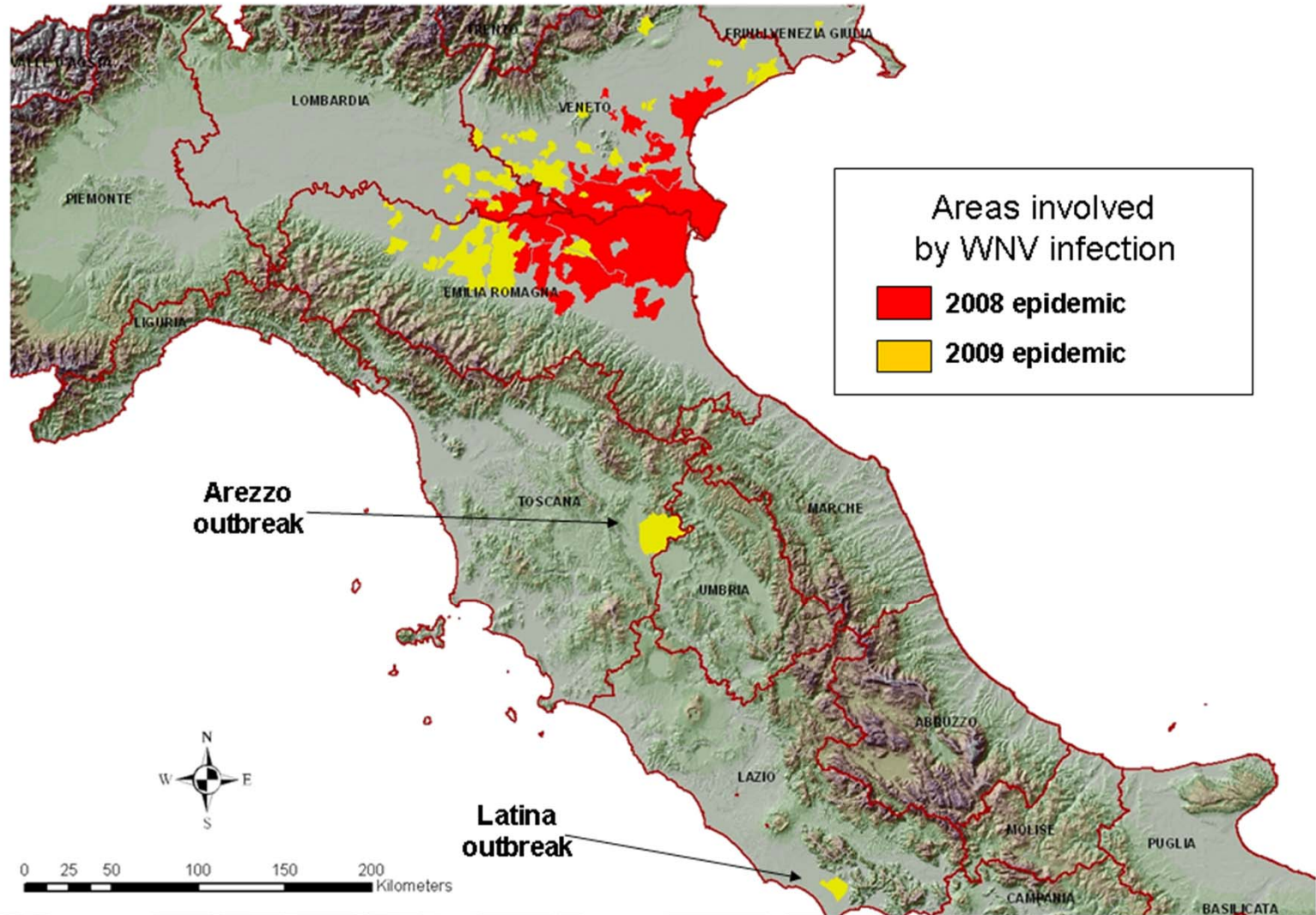
WND 2008 Infected area





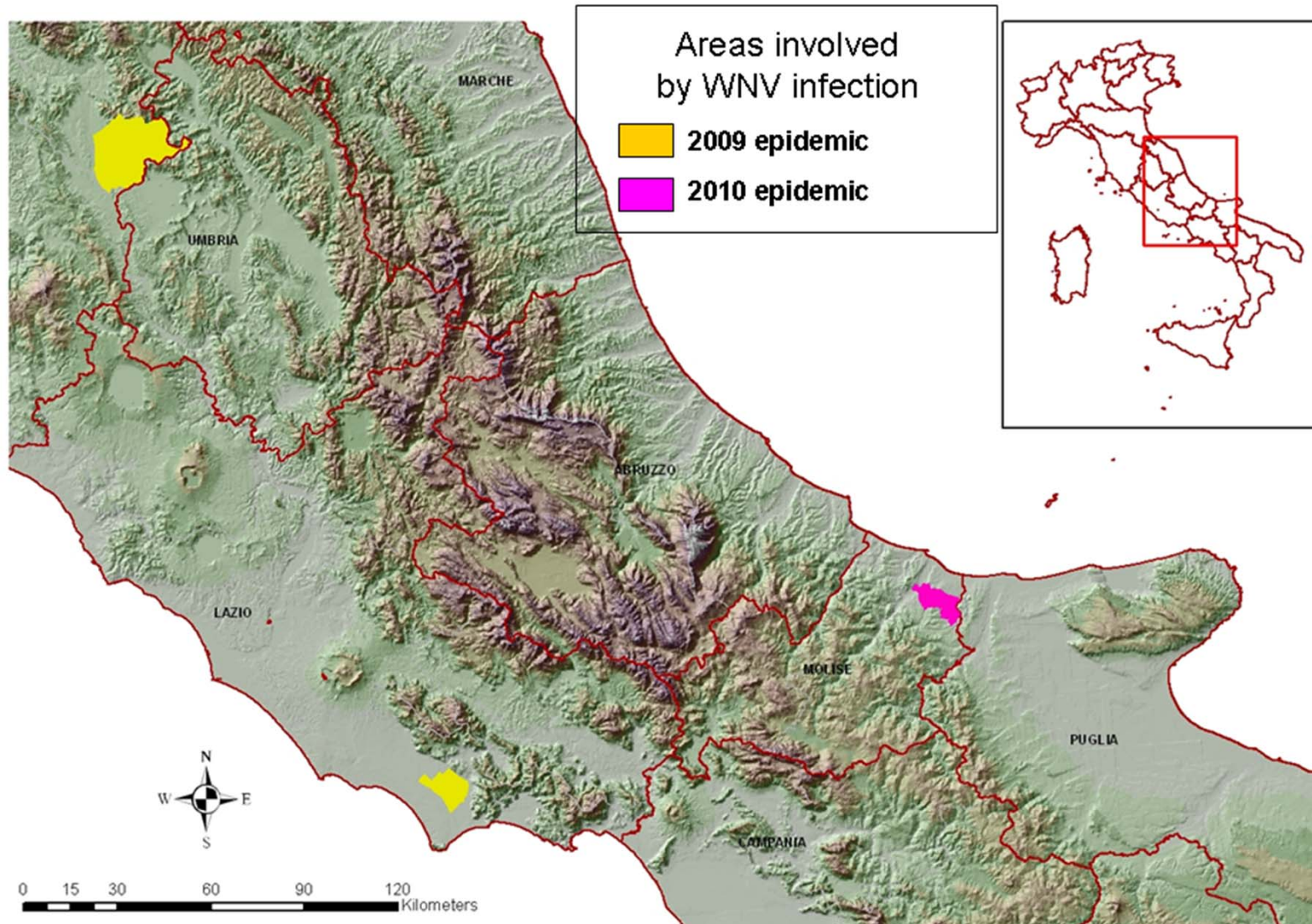
WNV 2008 – 2009

Infected area



WND 2009 – 2010

Infected area






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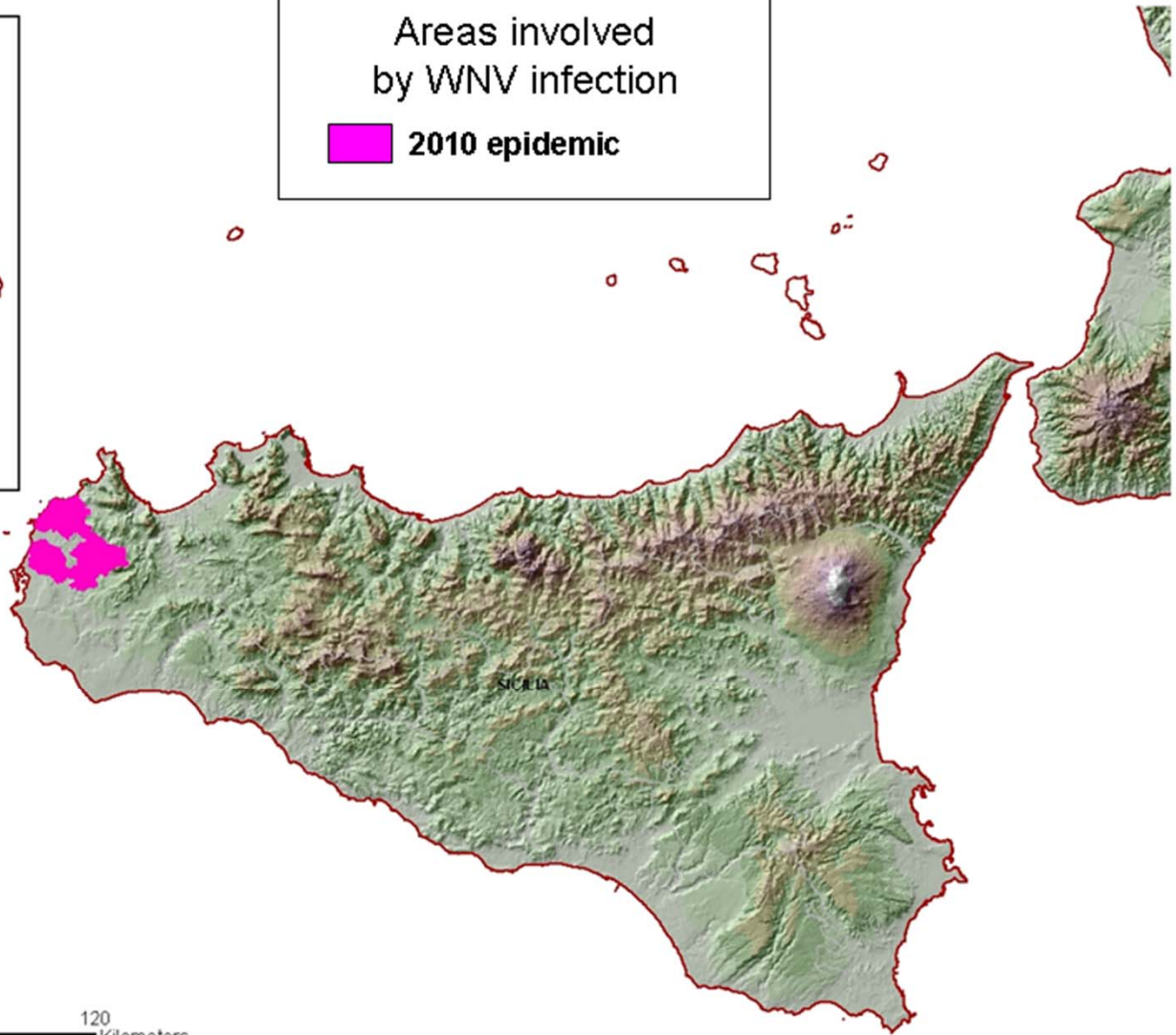


WND 2010 Infected area



Areas involved
by WNV infection

 2010 epidemic





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FIRST HUMAN CASE OF USUTU VIRUS NEUROINVASIVE INFECTION, ITALY, AUGUST-SEPTEMBER 2009

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3. Department. of Virology, National Reference Centre for West Nile and Usutu disease, OIE Reference Laboratory for Bluetongue, Istituto Zooprofilattico Sperimentale dell'Abruzzo e Molise 'G. Caporale', Teramo, Italy
4. Department of Biomedical Sciences, University of Modena and Reggio Emilia, Modena, Italy

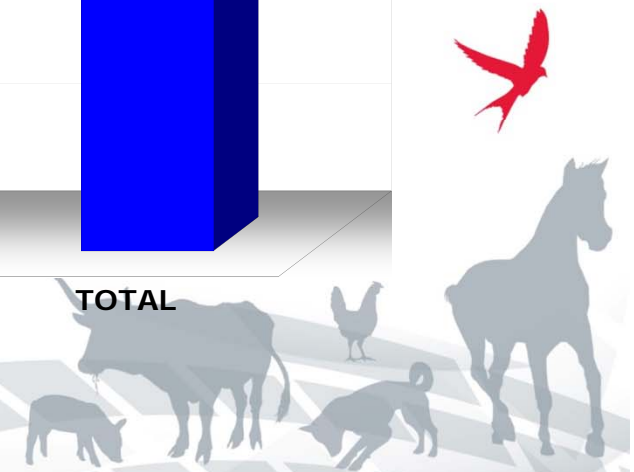
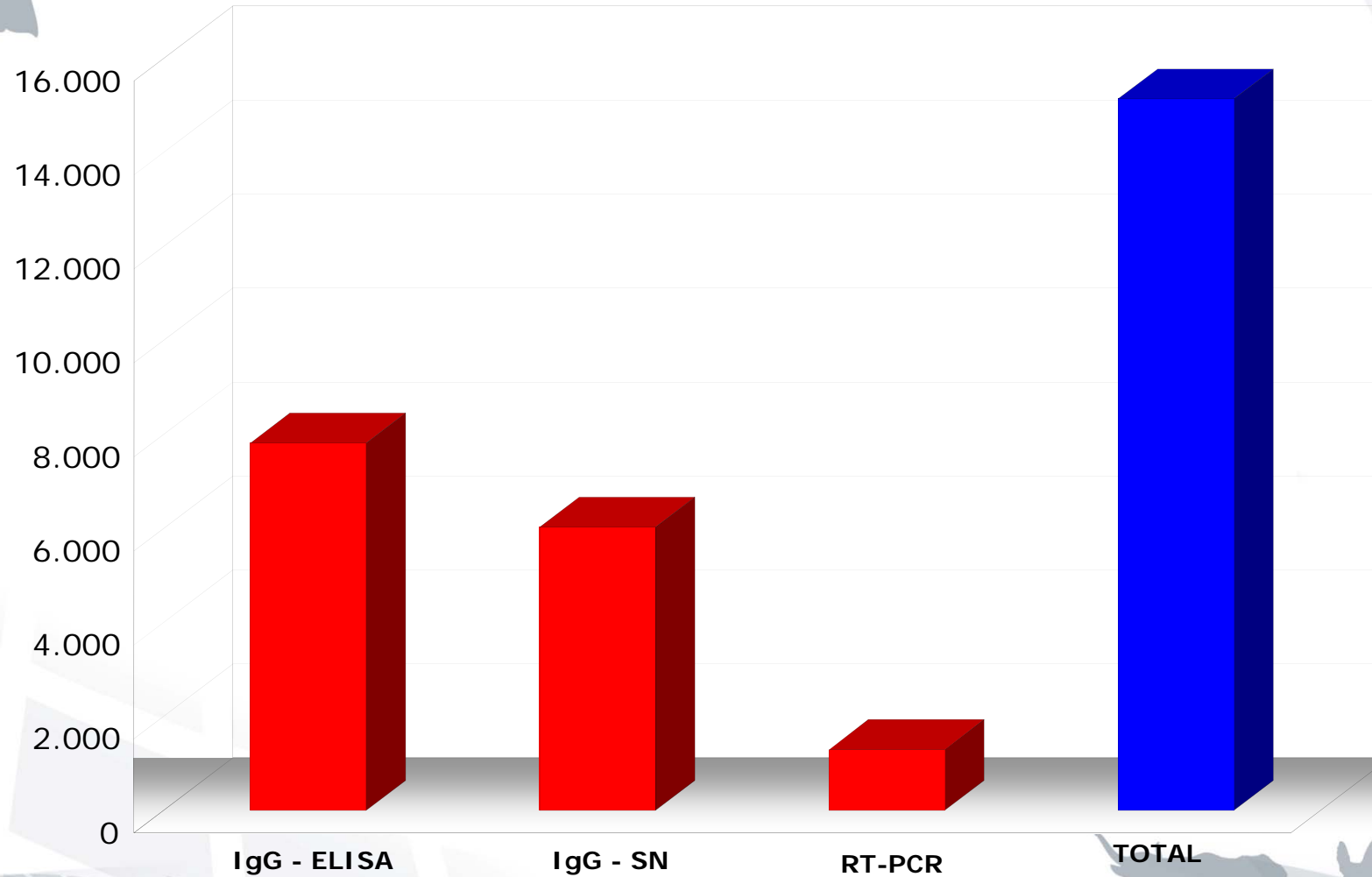
This article was published on 17 December 2009.

Citation style for this article: Pecorari M, Longo G, Gennari W, Grottoła A, Sabbatini AM, Tagliacruzchi S, Savini G, Monaco F, Simone ML, Lelli R, Rumpianesi F. First human case of Usutu virus neuroinvasive infection, Italy, August-September 2009. *Euro Surveill.* 2009;14(50):pii=19446. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19446>

www.eurosurveillance.org



No. of tests for USUTU 2009





➤ Horses

2007



Usutu 2007-2010

➤ Birds

2007





➤ Horses

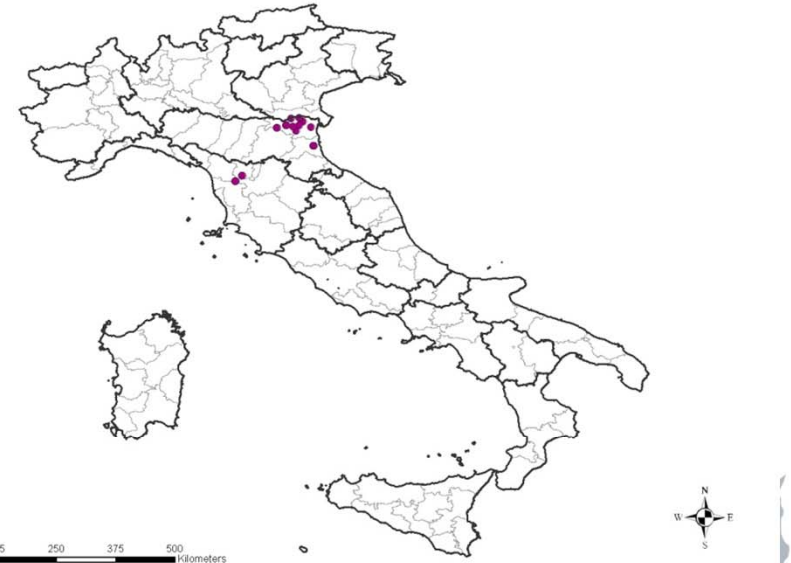
2008



Usutu 2007-2010

➤ Birds

2008





➤ Horses

2009

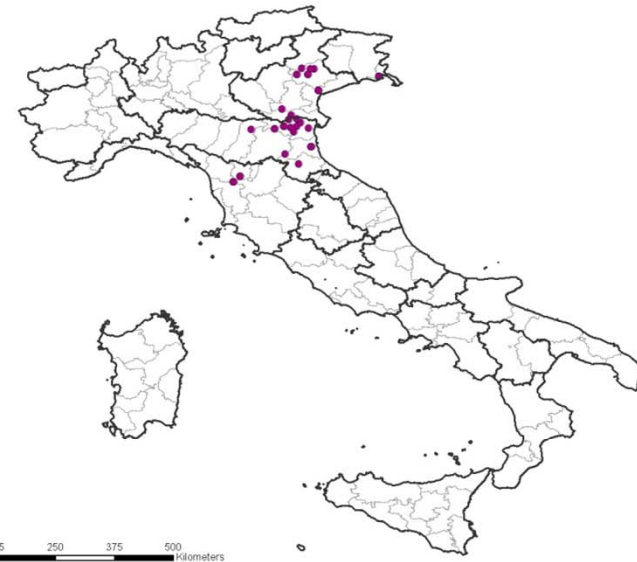


Usutu

2007-2010

➤ Birds

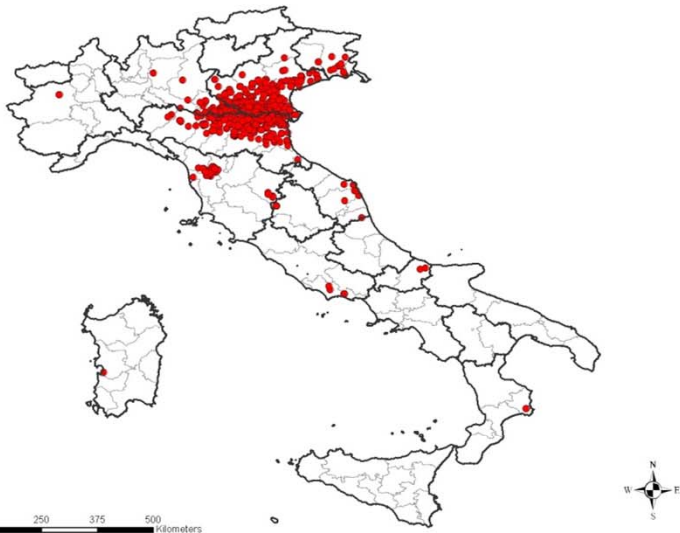
2009





➤ Horses

2010



Usutu

2007-2010

➤ Birds

2010





Thank you