

## Further spread of West Nile virus in Italy

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### Summary

Following two consecutive years of West Nile virus (WNV) circulation in Italy, new foci of infection were observed in August 2010 in Sicily and Molise in southern and central Italy, respectively. These incidents were far from the previous infected area in northern Italy, thereby confirming the ability of WNV to spread to new areas and affect new host populations.

### Keywords

Italy, Virus, West Nile, Zoonosis.

### Introduction

After 10 years of apparent absence in Italy, West Nile virus (WNV) infection re-emerged in August 2008 in the areas surrounding the delta of the Po River, and spread across the territories of three regions (Lombardy, Emilia Romagna and Veneto) (2). Clinical signs of meningo-encephalitis were observed in horses and humans living in the infected areas (1, 3) whereas WNV RNA was regularly detected by reverse transcriptase-polymerase chain reaction (RT-PCR) in magpies (*Pica pica*), carrion crows (*Corvus corone*) and rock pigeons (*Columba livia*) (4). In 2009, WNV re-occurred in the same outbreak areas of 2008 and also occurred in central Italy (Fig. 1) (5).

Full genome sequences of the WNV strains responsible for the 2008 and 2009 outbreaks in the Po Valley revealed a high degree of homology at both nucleotide and amino acid levels (5) which suggested that WNV was able to overwinter in northern Italy. In 2009, cases

of WNV were also reported in horses from stables located in the provinces of Arezzo (Tuscany) and Latina (Latium) (Fig. 1). It was not possible to isolate and/or sequence the virus responsible for these latter outbreaks and consequently any attempt to correlate these episodes with the most extensive virus circulation in the Po Valley was not possible.

### New foci of infection

In 2010, WNV continued to circulate and spread into new areas, affecting new host populations. New foci of infection were reported in central and southern Italy.

#### Sicily

On 23 August 2010 neurological signs were observed in five horses in an area close to Trapani in Sicily. Although never included in the national surveillance plan for West Nile infection, the area is a wildlife protected area which is characterised by the presence of salt flats where numerous migratory birds rest during migration.

Investigations conducted by the local veterinary services, in collaboration with the regional veterinary laboratory (*Istituto Zooprofilattico Sperimentale della Sicilia*) and the National Reference Centre for Exotic Diseases (*Centro di Referenza Nazionale per lo studio e l'accertamento delle malattie esotiche degli animali: CESME*) of the *Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise 'G. Caporale'* led to the confirmation of 42 outbreaks to date (Fig. 2), with 7 animals showing neurological signs. Given the severity of the clinical signs, one

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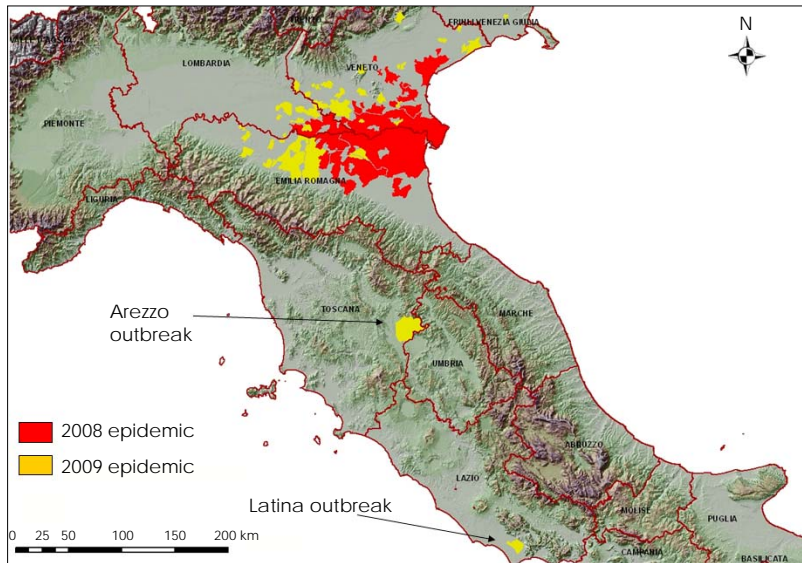


Figure 1  
Areas of Italy affected by West Nile virus infection in 2008 and 2009

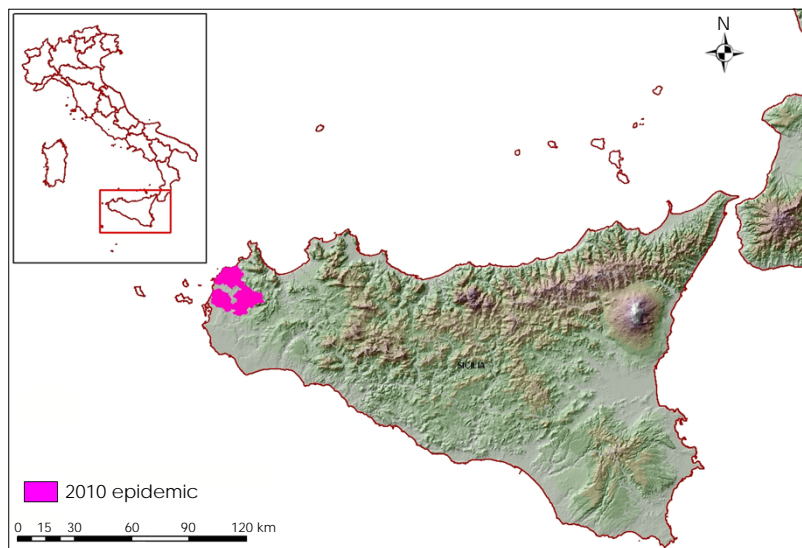


Figure 2  
Areas affected by West Nile virus infection in Sicily in 2010

horse had to be euthanised. A retrospective serological analysis of sera collected from dogs in the Trapani area proved that the infection was present in the area at least since the end of January. No human case has been reported to date. Further surveillance activities are ongoing to better define the area in which the virus is circulating.

**Molise**

On 31 August 2010, a sentinel horse in the Campobasso Province seroconverted to WNV (Fig. 3). The animal which tested negative on

the 29 May revealed IgM and neutralising antibodies (titre 1:80). To date, 7 outbreaks have been detected, based on serological tests.

The area was included in those covered by specific surveillance activities since 2001 and in November 2009, positive serological findings were obtained in two chickens on one rural farm. Subsequent WNV serological investigations in the 4 km radius area around the chicken farm detected IgG antibodies in 5 horses belonging to three stables. Clinical signs have not been observed to date, either in horses or in humans. Local veterinary services

are performing additional investigations in all horse stables in an area of 4 km around the outbreak.

## Discussion

In the last decade, an increase in the notification of episodes of West Nile infection has been observed in Europe and in the Mediterranean Basin. This increase could be linked to greater efforts of veterinary and public health authorities to detect vector-borne diseases. However, the continued detection of foci of WNV throughout Europe and the Mediterranean Basin which represents a constant threat for public health, might also imply the presence of endemic areas in these regions.

In 2010, late summer cases of West Nile disease were reported in Europe and across the Mediterranean Basin, in Greece (8), Morocco (9), Spain (10), Turkey (6) and in Russia (7).

It is not currently possible to say whether or not all these 2010 WND episodes that have occurred across Europe and the Mediterranean Basin are correlated.

## Conclusion

There is a need for both public health authorities and researchers of the countries involved to work closely together to identify the principal epidemiological mechanisms behind the scattered foci of WND infection currently being observed.

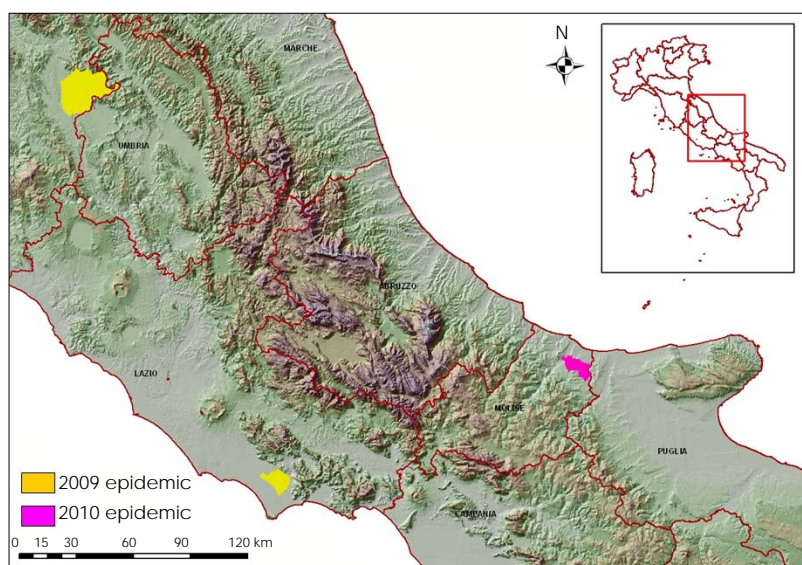


Figure 3  
Areas affected by West Nile virus infection in Arezzo and Latina (2009) and Campobasso (2010) Provinces

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