

# In-emergency surveillance for flavivirus performed after a human case of West Nile Virus in Central Italy

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## INTRODUCTION

In summer 2011, in the city of Ancona (Marche, Italy) a case of human WNDv fever was detected in a man hospitalized for an incoercible fever illness. Full genomic sequencing identified the virus belonged to the high virulent Lineage 2 <sup>(1)</sup>. WNDv Lineage 2 outbreak was widely spreading at that time in Greece but not yet in Italy. Entomological surveillance was carried out in the harbor where the man lives and works.

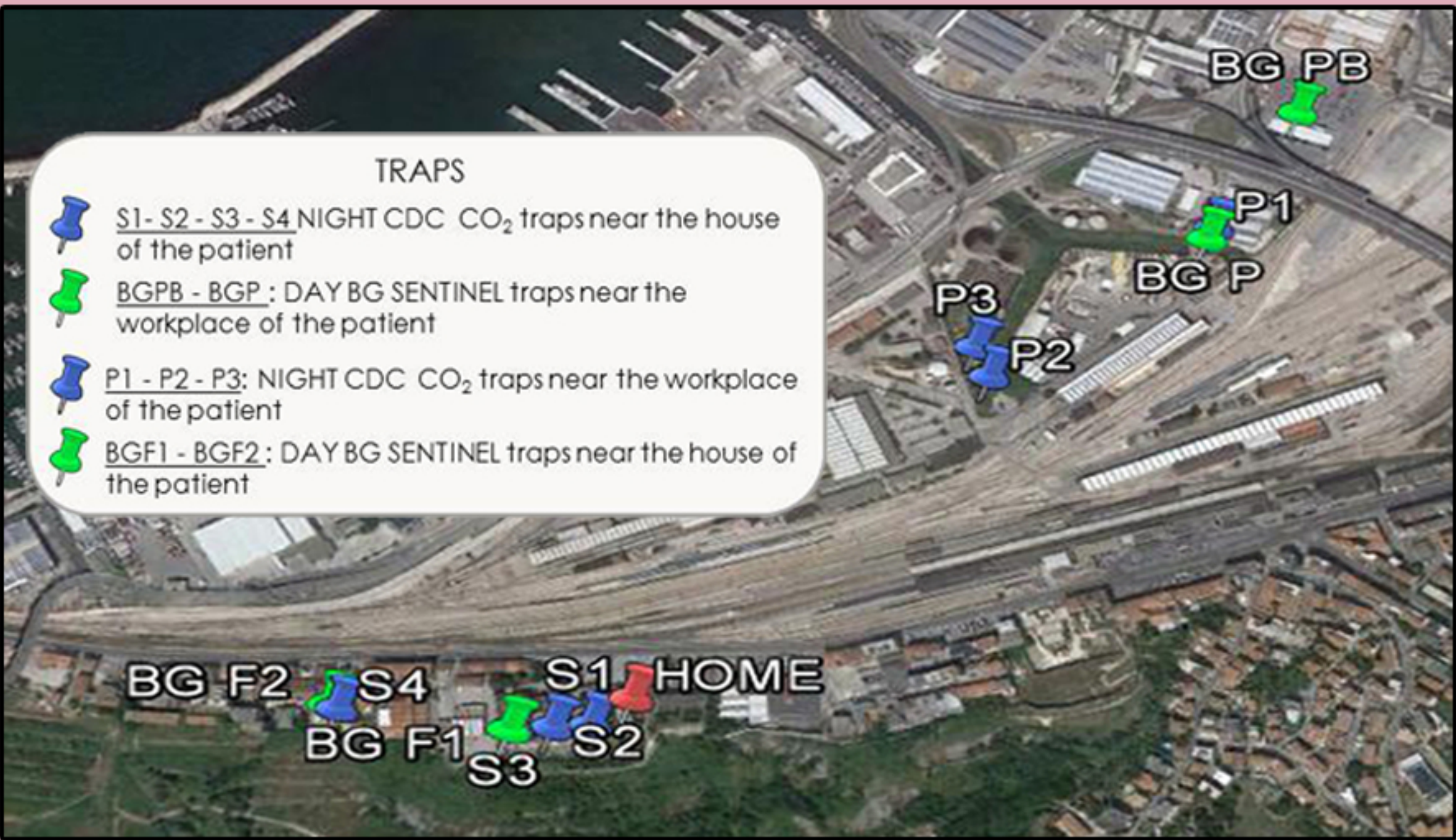


FIG 2. Traps installed

## RESULTS

An overall of one hundred and forty *Culex pipiens* and one hundred and thirty *Aedes albopictus*, not engorged female mosquitoes were analyzed by 28 pools. Mosquito-flavivirus was found in five pools of *Culex pipiens* and in four pools of *Aedes albopictus*. Usutu virus was found in three *Culex pipiens* pools. West Nile Virus was never been detected by RT-PCR. Usutu virus was belonging to the same strain that had caused a large scale outbreak, previous year, in blackbirds (*Turdus merula*) in the studied Area.

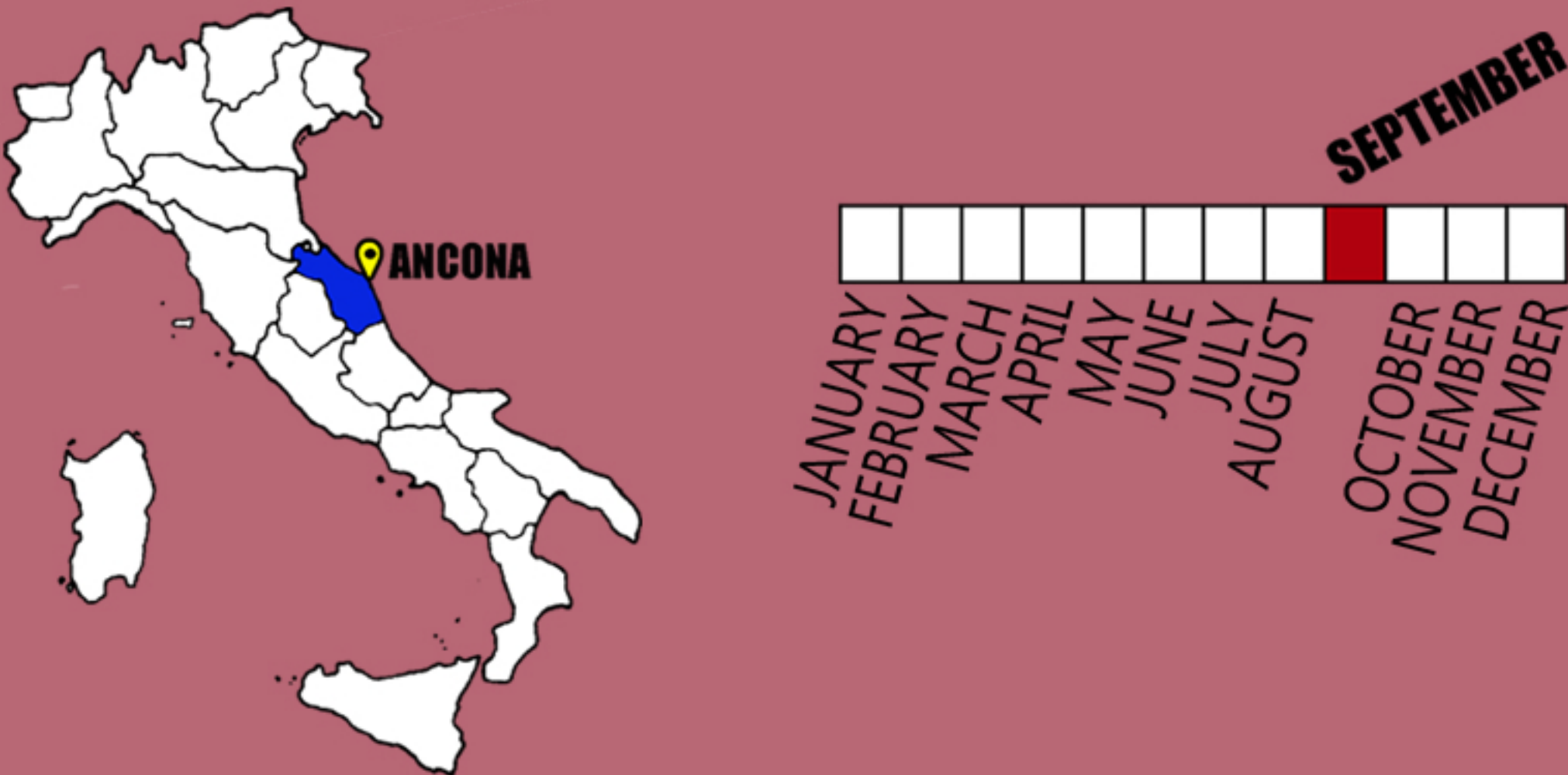


FIG 1. Place and time WND case

## MATERIALS AND METHODS

The risk Area was recognized; every mosquitoes breeding sites was removed and the inextinguishable sites were disinfested and then monitored.

- Seven CDC's CO2 traps
- Four BG sentinel traps® with BG Lure attractant

were used during 22 night and day long captures. Mosquitoes were submitted to the laboratory twice a day. Each capture trap were examined in order to identify mosquitoes species and their abundance. EMosquitoes was analyzed by pools for flavivirus by RT-PCR and positive samples have been confirmed by whole genome sequencing.

DATE	ZONE	N° TRAP	TRAP	MOSQUITO	FLAVIVIRUS	DATE	ZONE	N° TRAP	TRAP	MOSQUITO	FLAVIVIRUS
30/9/11	HOUSE	S3	Night CDC	C.pipiens	Negative	3/10/11	HOUSE	BG F1	Day BG sentinel	Ae.albopictus	Negative
30/9/11	HOUSE	S3	Night CDC	Ae.albopictus	Negative	5/10/11	HOUSE	S4	Night CDC	C.pipiens	Usutu
30/9/11	Harbor	P3	Night CDC	C.pipiens	Usutu - Mosquito flavivirus	5/10/11	Harbor	S3	Night CDC	C.pipiens	Negative
1/10/11	HOUSE	S3	Night CDC	C.pipiens	Mosquito flavivirus	6/10/11	HOUSE	S3	Night CDC	C.pipiens	Negative
1/10/11	HOUSE	BG F1	Day BG sentinel	Ae.albopictus	Negative	6/10/11	HOUSE	BG F1	Day BG sentinel	Ae.albopictus	Negative
1/10/11	Harbor	P3	Night CDC	C.pipiens	Usutu - Mosquito flavivirus	6/10/11	Harbor	P2	Night CDC	C.pipiens	Negative
1/10/11	Harbor	P3	Night CDC	Ae.albopictus	Mosquito flavivirus	6/10/11	HOUSE	BG F1	Day BG sentinel	not detected	
1/10/11	Harbor	BG P	Day BG sentinel	Ae.albopictus	Negative	17/10/11	Harbor	P3	Night CDC	C.pipiens	Negative
1/10/11	HOUSE	S2	Night CDC	C.pipiens	DETECTED (unidentified)	17/10/11	Harbor	P3	Night CDC	Ae.albopictus	Mosquito flavivirus
1/10/11	HOUSE	S2	Night CDC	Ae.albopictus	DETECTED (unidentified)	17/10/11	HOUSE	S1	Night CDC	C.pipiens	Negative
1/10/11	HOUSE	BG F1	Day BG sentinel	Ae.albopictus	Negative	18/10/11	Harbor	P1	Night CDC	C.pipiens	Negative
2/10/11	Harbor	P1	Night CDC	C.pipiens	DETECTED (unidentified)	18/10/11	Harbor	P1	Night CDC	Ae.albopictus	Negative
3/10/11	HOUSE	BG F1	Day BG sentinel	Ae.albopictus	Negative	21/10/11	Harbor	P1	Night CDC	Ae.albopictus	Negative
3/10/11	Harbor	BG P	Day BG sentinel	Ae.albopictus	DETECTED (unidentified)	21/10/11	Harbor	S4	Night CDC	C.pipiens	Negative
TOTAL FLAVIVIRUS										10	

FIG 3. Results

## CONCLUSION

Since WNDv wasn't detected by the surveillance, we suppose the virus was introduced from Greece with an infected mosquito by shipping trade. In-emergency entomological surveillance plan is a fundamental tool to measure the width of outbreak's area and a "just in time" pest control is addressed to reduce the spreading of the virus.



XXVIII CONGRESSO NAZIONALE SOIPA  
Casa dell'Aviatore, ROMA, 24-27 giugno 2014



### REFERENCES

(1). Bagnarelli P, et. al. Human case of autochthonous West Nile virus lineage 2 infection in Italy, September 2011 Euro Surveill. 2011;16 (43):pii=20002