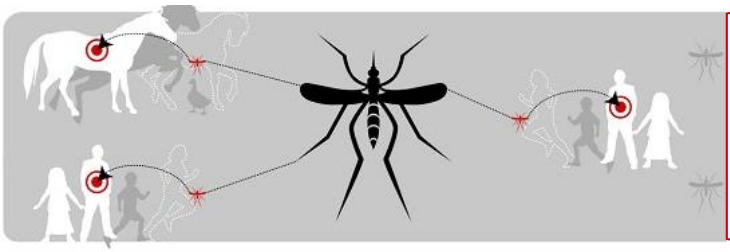


IZS TERAMO
NATIONAL REFERENCE CENTRE FOR EXOTIC DISEASES OF ANIMALS

ISTITUTO SUPERIORE DI SANITÀ

Integrated surveillance of West Nile and Usutu virus

Epidemiological report no. 11 5 September 2024
National data

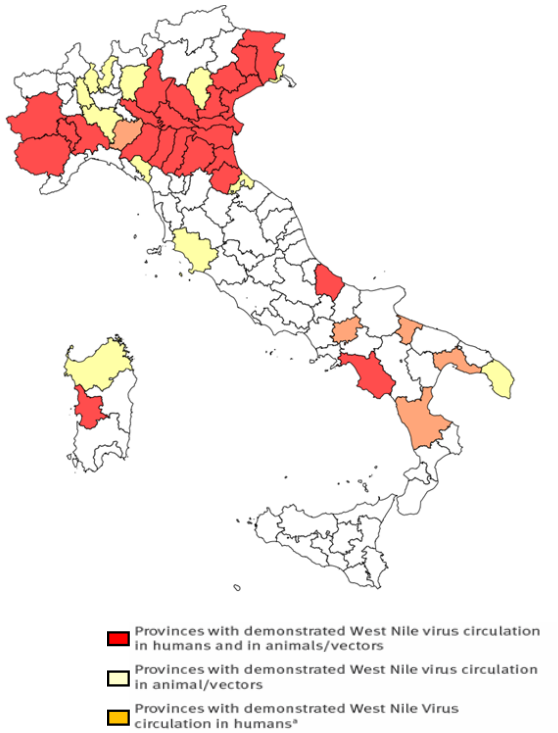
1 In Evidence

This report summarizes the results of West Nile virus and the Usutu virus surveillance activities in Italy, updated to **4-9-2024**

Sixty-four new human cases of West Nile Virus were reported during the period August 29-September 4, 2024. Since the beginning of May 2024, 296 confirmed cases of West Nile Virus (WNV) infection in humans have been reported in Italy (232 in the previous bulletin); of these 169 occurred in the neuro-invasive form (10 Piedmont, 4 Lombardy, 32 Veneto, 5 Friuli-Venezia Giulia, 102 Emilia-Romagna, 4 Campania, 2 Apulia, 2 Calabria, 1 Sardinia, 2 cases imported from the United States and 5 from Albania), 39 asymptomatic cases identified in blood donors (2 Piedmont, 8 Lombardy, 11 Veneto, 2 Friuli-Venezia Giulia, 14 Emilia-Romagna, 1 Abruzzo, 1 Campania), 88 fever cases (2 Piedmont, 1 Lombardy, 57 Veneto, 1 Friuli-Venezia Giulia, 24 Emilia-Romagna, 1 Calabria, 1 case imported from Oman and 1 from Morocco). Among the confirmed cases, 11 deaths were reported (3 Piedmont, 4 Veneto, 1 Friuli-Venezia Giulia, 2 Emilia-Romagna, 1 Calabria). The first indigenous human case of WNV infection of the season was reported from Emilia-Romagna on June 26 in the province of Modena. A case of Usutu virus was reported in the province of Modena during the same period.

Veterinary surveillance performed on horses, mosquitoes, resident and wild birds confirmed the circulation of WNV in **Abruzzo, Campania, Tuscany, Apulia, Veneto, Friuli-Venezia Giulia, Piedmont, Sardinia, Emilia-Romagna, Marche and Lombardy** region. Molecular analysis confirmed the circulation of **WNV Lineage 1 and 2.** Positivities are being confirmed in the Bergamo province.

Figure 1. *Provinces where WNV has been detected in vectors, animals and humans (blood donor, fever and neuroinvasive cases)*



Integrated WN and Usutu virus surveillance

1 Human

Since May 2024, the start of surveillance, 296 confirmed human cases of West Nile Virus (WNV) have been reported in Italy, 169 of which have manifested neuro-invasive symptoms (Table 1), 39 asymptomatic cases identified in blood donors (2 Alessandria, 1 Benevento, 4 Bologna, 2 Brescia, 1 Chieti, 2 Cremona, 4 Mantua, 10 Modena, 7 Padua, 2 Rovigo, 1 Treviso, 2 Udine, 1 Verona), 88 cases of fever (1 Alessandria, 5 Bologna, 1 Cosenza, 1 Ferrara, 1 Forlì-Cesena, 1 Mantua, 11 Modena, 23 Padua, 2 Parma, 1 Piacenza, 3 Reggio Emilia, 11 Rovigo, 1 Turin, 8 Treviso, 1 Udine, 8 Venice, 7 Verona, 1 imported from Oman, and 1 from Morocco). Below is a description of the neuro-invasive forms only. Translated with DeepL.com (free version)

Table 1. Distribution of confirmed WNND cases by province of exposure and age group. Italy: 2024

Regione/Provincia di esposizione	Fascia di età					Totale
	<=14	15-44	45-64	65-74	>=75	
Piemonte (n=10)						
Alessandria				1	2	**3**
Asti				1	3	**4**
Cuneo				1		**1**
Torino					2	**2**
Lombardia (n=4)						
Mantova			1	1	1	**3**
Milano					1	**1**
Veneto (n=32)						
Padova	1		4	2	7	**14**
Rovigo			1	1	5	**7**
Treviso		1	1			**2**
Venezia		2	2		3	**7**
Verona					2	**2**
Friuli-Venezia Giulia (n=5)						
Pordenone					3	**3**
Udine					2	**2**
Emilia-Romagna (n=102)						
Bologna		1	5	6	11	**23**
Ferrara			3	2	1	**6**
Forlì-Cesena		1			1	**2**
Modena		1	6	10	19	**36**
Parma			1	1	2	**4**
Piacenza			1			**1**
Ravenna					1	**1**
Reggio Emilia		1	5	10	13	**29**
Campania (n=4)						
Salerno			1	1	2	**4**
Puglia (n=2)						
Barletta-Andria-Trani			1			**1**
Taranto					1	**1**
Calabria (n=2)						
Cosenza					2	**2**
Sardegna (n=1)						
Oristano					1	**1**
Totale	**1**	**7**	**32**	**37**	**85**	**162**

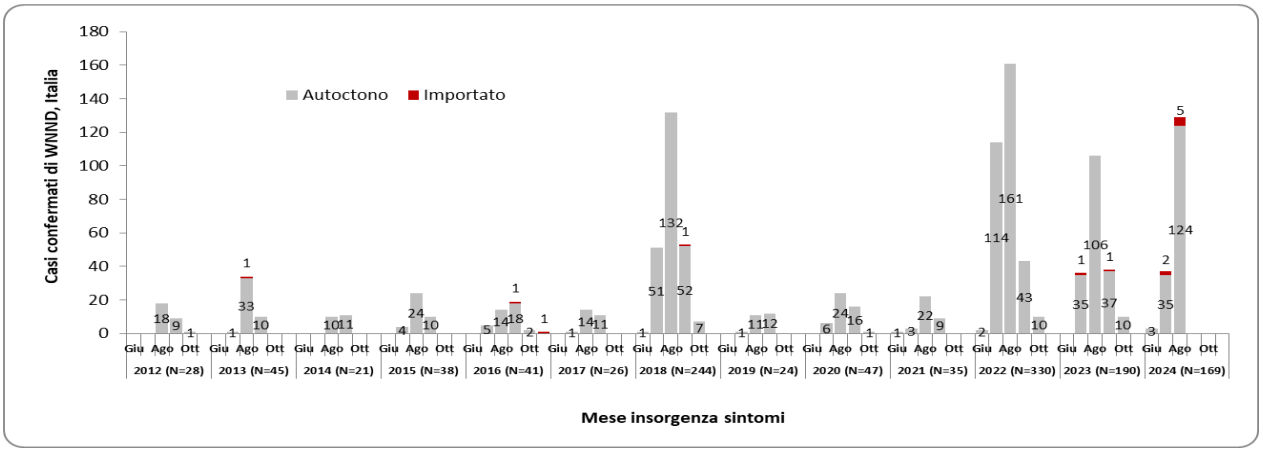


Figure 1. Trend of confirmed WNND cases by symptom onset month. Italy: 2012 – 2024.

Integrated WN and Usutu virus surveillance

3 Horses

10 WND outbreaks have been confirmed in equids in **Emilia Romagna Emilia Romagna, Veneto, Piemonte, Puglia e Abruzzo** region.

Region	Province	N.Outbreaks	N.clinical outbreaks	Outbreaks details				Prevalence %	Letality%
				susceptible animals	Total cases	Clinical cases	Death		
Puglia	Lecce	2	2	6	2	2	1	33,3	50
Abruzzo	Chieti	1	0	7	1	0	0	14,3	0
Veneto	Padova	1	1	39	1	1	0	2,6	0
	Vicenza	1	1	27	1	1	1	3,7	0
	Verona	1	1	94	2	1	0	2,1	0
Piemonte	Asti	1	1	27	1	1	1	3,7	100
	Torino	1	1	53	1	1	0	2	0
Emilia Romagna	Modena	1	1	22	1	1	1	4,5	100
	Bologna	1	1	25	1	1	0	4,0	0

4 Resident birds of target species

CESME confirmed WNV in **95 resident birds** belong to target species from **Lombardia, Toscana, Sardegna, Abruzzo, Piemonte, Friuli Venezia Giulia, Emilia Romagna e Veneto.** The circulating strains belong to **Lineage 1 Lineage 2.**

The target species for the surveillance are :

- **Magpie (*Pica pica*)**
- **Carrion crow (*Corvus corone cornix*)**
- **Eurasian jay (*Garrulus glandarius)***

Figure 1 Geographical distribution West Nile virus detection in birds belong to target species - **2024**

Region	Province	Carrion Crow	Magpie	Jay
Emilia Romagna	Forlì Cesena	0	3	1
	Ferrara	4	46	1
	Modena	1	4	0
	Parma	3	4	0
	Ravenna	0	0	2
	Reggio Emilia	0	1	0
	Rimini	0	1	0
Friuli Venezia Giulia	Udine	0	1	0
Piemonte	Cuneo	1	0	0
	Novara	1	0	0
	Torino	1	0	0
Sardegna	Oristano	1	0	0
Veneto	Rovigo	1	1	1
	Verona	1	1	0
	Venezia	0	3	1
Abruzzo	Chieti	0	5	0
Lombardia	Varese	0	1	0
Toscana	Grosseto	3	0	0
	Massa Carrara	0	1	0
Total		17	72	6

Table 1 West Nile virus detection in birds belong to target species- **2024**

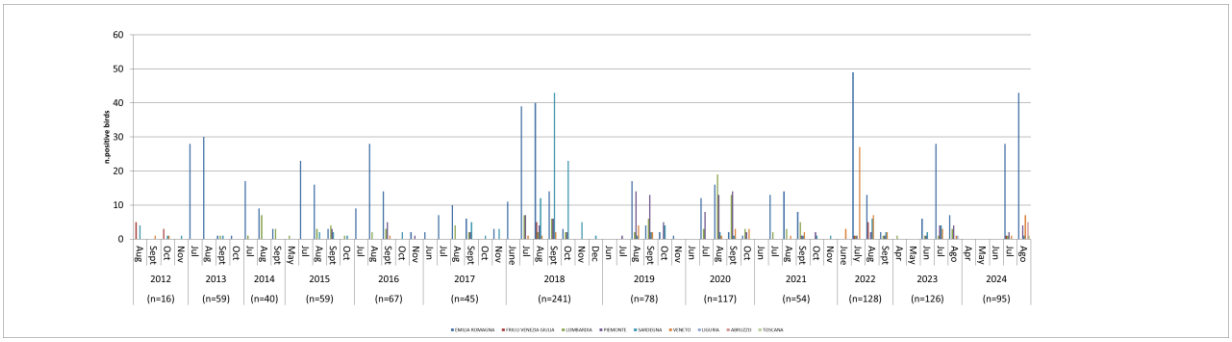


Figure 2 Spatio–temporal distribution West Nile virus detection in birds belong to target species - **2024**

5

Wild birds

CESME confirmed WNV in **91 wild birds from Marche, Emilia Romagna, Veneto e Campania** regions. The circulating strains belong **to Lineage 1 and Lineage 2.**

Figure 3 Geographical distribution West Nile virus detection in wild birds- **2024**

Region		n.birds+
Marche	Ancona	1
Emilia Romagna	Rimini	5
	Ravenna	2
	Modena	2
	Ferrara	31
Veneto	Padova	11
	Verona	2
	Rovigo	7
	Venezia	29
Campania	Salerno	1
Total		91

Table 2 West Nile virus detection in wild birds **2024**

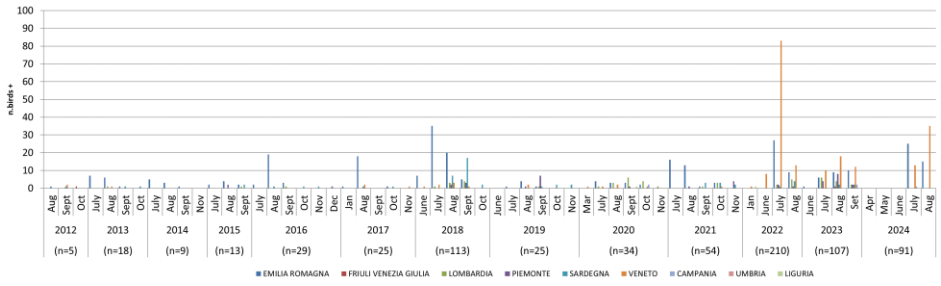


Figure 4 Spatio–temporal distribution West Nile virus detection in wild birds - **2024**

6 Entomological surveillance

WNV genome has been reported in **134 mosquito pool** collected in **Emilia Romagna, Abruzzo, Veneto, Piemonte, Sardegna, Friuli Venezia Giulia Lombardia** regions**.** The circulating strains belong to **Lineage 2**. In Sicilia and Veneto was confirmed **WNV Lineage 1 and Lineage 2.**

Figure 5 Geographical distribution West Nile virus detection in mosquitoes - **2024**

Region	Province	n.pool +
Emilia Romagna	Parma	10
	Ferrara	19
	Forlì Cesena	1
	Reggio Emilia	22
	Bologna	8
	Modena	17
Lombardia	Cremona	1
	Mantova	5
Veneto	Verona	11
	Venezia	12
	Treviso	2
	Padova	3
	Rovigo	12
Sardegna	Oristano	1
Friuli Venezia Giulia	Gorizia	1
	Pordenone	3
Piemonte	Torino	1
	Alessandria	1
Abruzzo	Chieti	4
Total		134

Table 2 West Nile virus detection in mosquitoes- **2024**

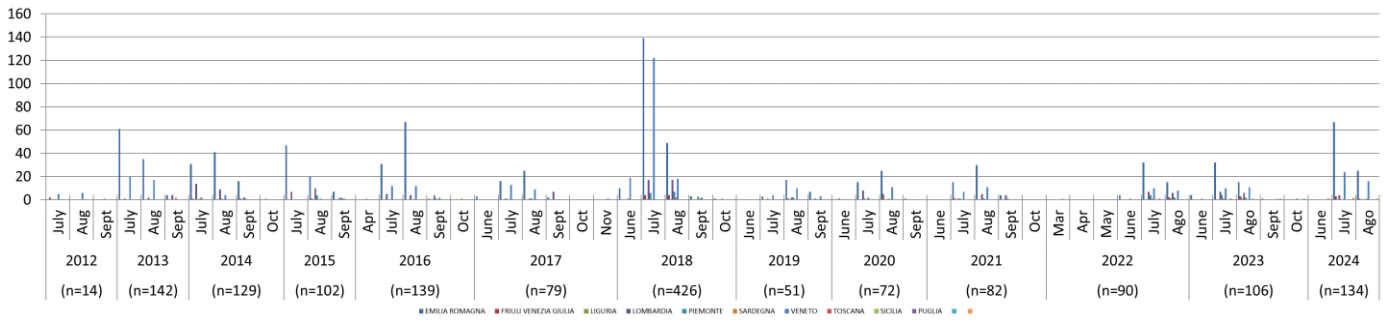


Figure 6 Spatio–temporal distribution West Nile virus detection in mosquitoes - **2024**

7

Poultry surveillance

- No WND outbreaks have been confirmed in poultry flocks.



8 USUTU virus surveillance

Usutu virus was identified in **20 mosquito pools and 18 birds** in **Emilia Romagna, Toscana, Lombardia, Marche, Sardegna e Piemonte.**

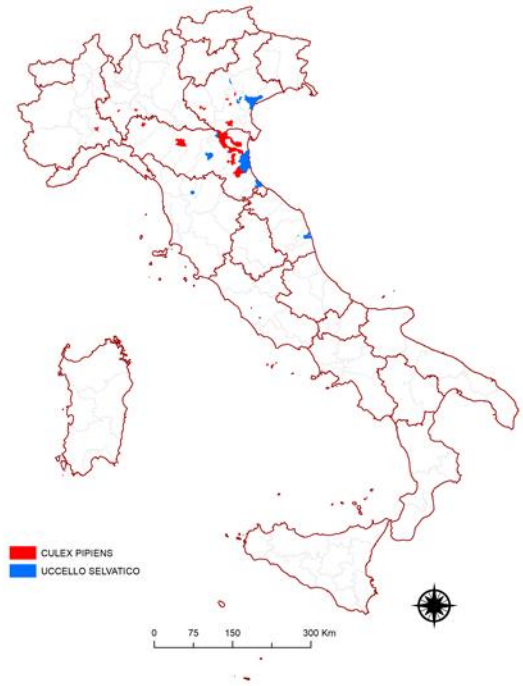


Figure 7 Geographical distribution Usutu virus detection in birds and mosquitoes - **2024**

Region	Province	n.pool+
Piemonte	Alessandria	2
Emilia Romagna	Bologna	1
	Ferrara	4
	Forlì Cesena	2
	Ravenna	2
	Reggio Emilia	1
	Piacenza	1
Lombardia	Lodi	1
	Pavia	1
Veneto	Padova	2
	Rovigo	1
	Verona	1
	Vicenza	1
Total		20

Table 3 Usutu virus detection in mosquitoes - **2024**

Regione	Provincia	n.uccelli+
Emilia Romagna	Bologna	1
	Ferrara	4
	Ravenna	1
	Rimini	3
Marche	Fermo	1
Toscana	Pistoia	1
Veneto	Venezia	6
	Vicenza	1
Totale		18

Table 4 Usutu virus detection in birds -**2024**

9 National Plan for Prevention, Surveillance and Response to Arbovirus 2020-2025

West Nile (WNV) and Usutu (USUV) viruses surveillance activities since 2020 are included in the National Plan for Prevention, Surveillance and Response to Arbovirus 2020-2025.

The Plan integrates in a unique document the surveillance measures to be implemented at the national level for autochthonous and imported arboviruses, promoting a multidisciplinary approach in the management of surveillance and control activities.

More details about the integrated surveillance plan are available on the complete document «National Plan for Prevention, Surveillance and Response to Arbovirus 2020-2025.»

National Human surveillance activities are coordinated by the National Institute of Health (Istituto Superiore di Sanità, ISS) and the Ministry of Health is responsible to provide surveillance data to the European Commission and to ECDC. Moreover regions can implement normative-programmatic documents for the epidemiological and laboratory surveillance on their territory according to National legislation and guidelines provided by the Ministry of Health .

Veterinary surveillance activities are coordinated by the National Reference Center for the exotic diseases of animals (CESME) which harmonize the diagnostic procedures within the network of IIZZSS national laboratories and confirms suspected specimens. CESME is also in charge for the veterinary surveillance data management, collection and communication to the Ministry of Health according to the data flow reported in the Plan.

Useful links

- Web page of National Institute of Health
- Web page of Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale" (CESME)
- Directions of the National Italian Blood Center
- Directions of the National Italian Transplant Center
- Web page of the Italian Ministry of Health
- Web page of ECDC

The weekly report is prepared by:

A. Bella, G. Venturi, F. Riccardo – Department of Infectious diseases, ISS

F. Iapaolo, F. Monaco, P. Calistri – CESME, Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise.

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