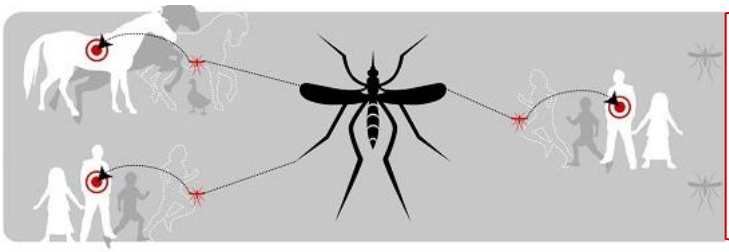


IZS TERAMO
NATIONAL REFERENCE CENTRE FOR EXOTIC DISEASES OF ANIMALS

ISTITUTO SUPERIORE DI SANITÀ

Integrated surveillance of West Nile and Usutu virus

Epidemiological report no. 12 7 September 2022
National data

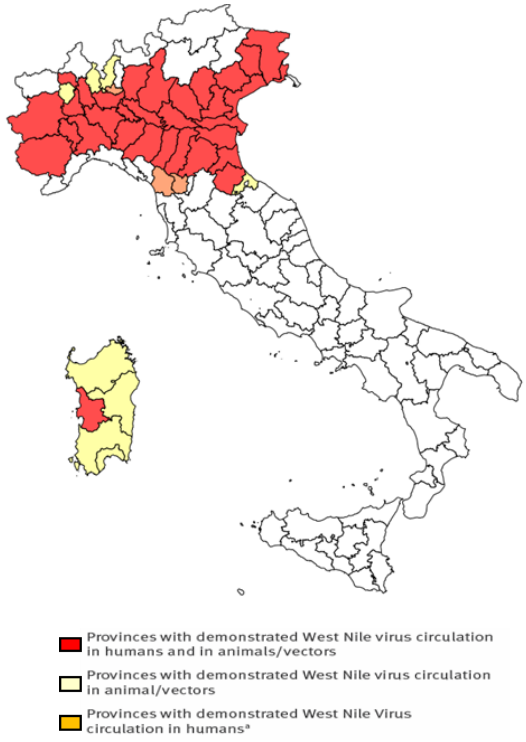
Integrated WN and Usutu virus surveillance

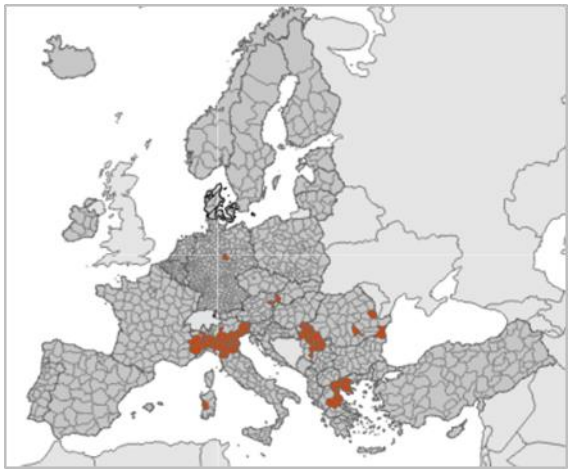
1 In Evidence

This report summarizes the results of West Nile virus and the Usutu virus surveillance activities in Italy, updated to **6-9-2022**

- Since June 2022, **440** confirmed cases of West Nile Virus (WNV) infection in humans have been reported in Italy; of these **216** occurred in the neuro-invasive form (28 Piedmont, 18 Lombardy, 108 Veneto, 4 Friuli-Venezia Giulia, 51 Emilia-Romagna, 3 Tuscany, 4 Sardinia), **66** cases identified in blood donors (7 Piedmont, 21 Lombardy, 24 Veneto, 14 Emilia-Romagna), **149** cases of fever (3 Piedmont, 10 Lombardy, 123 Veneto, 10 Friuli-Venezia Giulia, 2 Emilia-Romagna), 8 symptomatic cases (1 Lombardy, 6 Veneto, 1 Friuli -Venezia Giulia) and 1 asymptomatic case (1 Veneto). The first human case of the season was reported by Veneto in June in the province of Padua. Among the confirmed cases, 24 deaths were reported (5 Piedmont, 3 Lombardy, 13 Veneto, 1 Friuli-Venezia Giulia, 2 Emilia-Romagna). In the same period, 3 cases of Usutu virus were reported in blood donors (2 Friuli-Venezia Giulia, 1 Piedmont).
- Surveillance in mosquitoes, resident birds, wild birds, poultry and horses confirmed the circulation of WNV in **Piemonte Veneto, Emilia Romagna, Lombardia, Friuli Venezia Giulia and Sardegna** region. Molecular analysis confirmed **Lineage 2** and **Lineage 1** circulation.
- As of 31 August 2022, 442 human cases of WNV have been reported in the EU Member States (301 Italy, 118 Greece, 18 Romania, 2 Austria, 1 Germany, 1 Hungary, 1 Slovakia) of which 32 deaths (20 Italy, 11 Greece, 1 Romania). 105 cases were reported from neighboring countries (105 Serbia) and 7 deaths (Source: ECDC 2022).

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

2 Human

Since June 2022, the start of surveillance, **440** of West Nile Virus (WNV) infection have been reported in Italy, **216** WNND (Table 1) all autochthonous cases, **66** identified in blood donors and **149** cases of fever . Details of WNND are provided below.

Region/Province	Age group					Total
	<=14	15-44	45-64	65-74	>=75	
Piemonte						
Alessandria	1				3	**4**
Asti					2	**2**
Cuneo			1	1		**2**
Novara			2		7	**9**
Torino			1	1	2	**4**
Vercelli			1	1	5	**7**
Lombardia						
Bergamo			1			**1**
Brescia			1	2	2	**5**
Cremona				1	3	**4**
Lodi				1		**1**
Mantova					2	**2**
Milano		1	1			**2**
Pavia				1	2	**3**
Veneto						
Padova		3	11	16	36	**66**
Rovigo				4	7	**11**
Treviso		1	1		1	**3**
Venezia			1	5	9	**15**
Verona		1	3		1	**5**
Vicenza			1		7	**8**
Friuli-Venezia Giulia						
Gorizia					1	**1**
Pordenone				1	2	**3**
Emilia-Romagna						
Bologna			2	1		**3**
Ferrara			1	6	5	**12**
Modena		1	2	6	2	**11**
Parma			1	2	3	**6**
Piacenza			1	3	4	**8**
Ravenna			1	2	4	**7**
Reggio Emilia		1	1	1	1	**4**
Toscana						
Lucca		1				**1**
Pistoia					2	**2**
Sardegna						
Oristano				2	2	**4**
Total	**1**	**9**	**34**	**57**	**115**	**216**

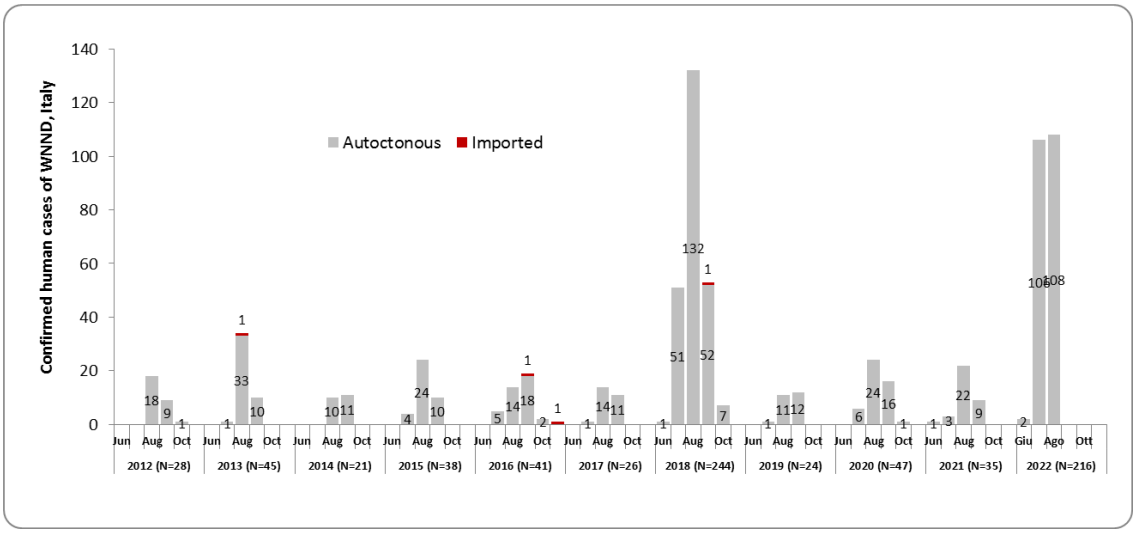


Figure 1. Trend of confirmed cases of WNND by month onset of symptoms. Italy: 2012 - 2022**.**

3 Horses

24 WNND outbreaks in horses have been confirmed by the National Reference Centre for exotic diseases (CESME) in **Piemonte, Friuli Venezia Giulia, Emilia Romagna, Lombardia and Veneto** region .

Region	Province	N. Outbreaks	N. Clinical outbreaks	Outbreaks details				Prevalence (%)	Letality (%)
				Susceptible	N.cases	Clinical cases	Death/ slaughtered		
VENETO	Padova	6	6	72	6	6	0	0,08	0
	Venezia	1	1	103	1	1	0	0,01	0
	Treviso	1	1	71	1	1	0	1,41	0
	Vicenza	2	2	25	2	2	0	0,08	0
LOMBARDIA	Cremona	1	1	38	1	1	0	0,03	0
	Mantova	2	2	2	2	2	1	1,00	1
	Brescia	2	2	18	2	2	0	0,11	0
EMILIA ROMAGNA	Piacenza	1	1	101	2	2	0	0,02	0
	Parma	1	1	46	1	1	1	0,02	100
FRIULI VENEZIA GIULIA	Udine	2	2	38	2	2	0	0,05	0
PIEMONTE	Biella	1	1	24	1	1	1	0,04	0
	Novara	1	1	9	1	1	0	0,11	0
	Asti	1	1	41	1	1	1	0,02	100
	Cuneo	2	2	144	4	4	2	0,03	0
Total		**24**	**24**	**732**	**27**	**27**	**5**	**0,07**	**0,19**

Table 2 West Nile Disease in horses- **2022**

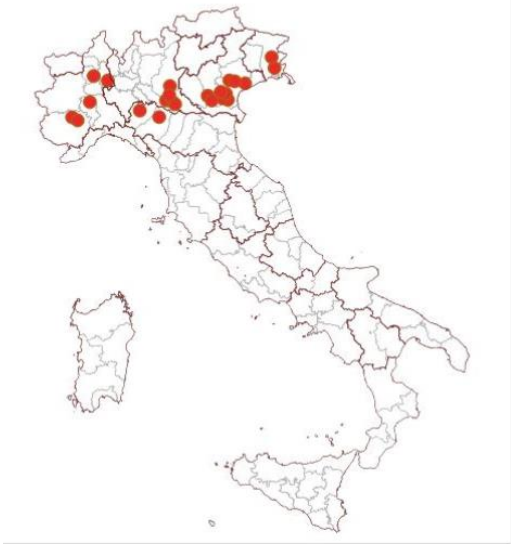


Figure 2 Geographical distribution West Nile virus detection in horses - **2022**

4 Resident birds of target species

CESME confirmed WNV in **102** resident birds belong to target species from **Emilia Romagna, Lombardia, Friuli Venezia Giulia, Piemonte, Sardegna and Veneto** region. The circulating strains belong to **Lineage 2** and **Lineage 1.**

The target species for the surveillance are :

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

Figure 3 Geographical distribution West Nile virus detection in birds belong to target species - **2022**

Regione	Provincia	Cornacchia	Gazza	Ghiandaia	n.uccelli+
EMILIA ROMAGNA	Piacenza	0	3	0	3
	Bologna	2	3	2	7
	Ferrara	4	18	0	22
	Ravenna	0	8	1	9
	Parma	6	2	0	8
	Rimini	0	2	0	2
	Reggio Emilia	3	4	0	7
LOMBARDIA	Milano	1	0	0	1
VENETO	Vicenza	2	2	0	4
	Verona	4	1	0	5
	Venezia	3	0	4	7
	Padova	5	3	1	9
	Rovigo	3	2	1	6
PIEMONTE	Alessandria	1	0	0	1
	Cuneo	1	0	0	1
SARDEGNA	Sud Sardegna	4	0	0	4
FRIULI VENEZIA GIULIA	Udine	6	0	0	6
Totale		45	48	9	102

Table 3 West Nile virus detection in birds belong to target species- **2022**

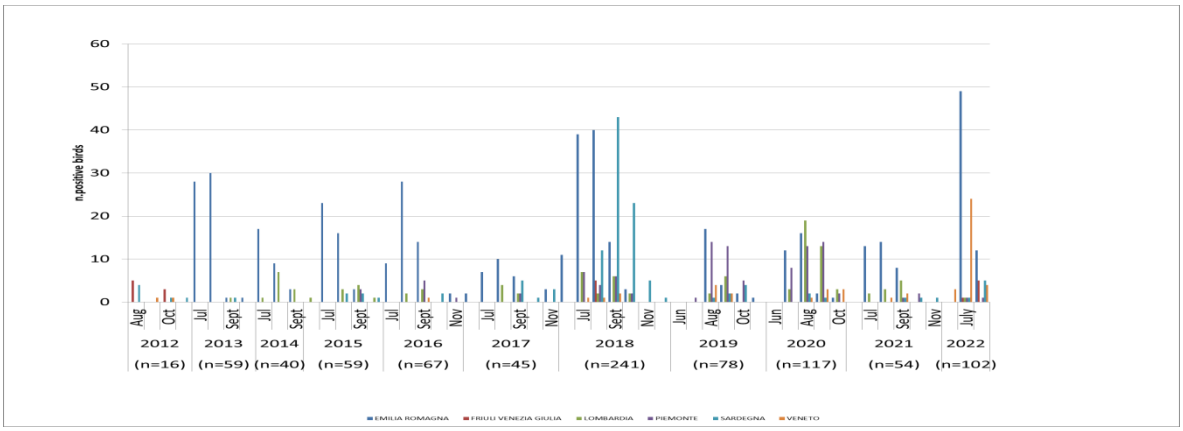


Figure 2 Spatio–temporal distribution West Nile virus detection in birds belong to target species - **2022**

5 Wild birds

CESME confirmed WNV in **113 wild birds** from **Piemonte, Veneto, Emilia Romagna, Lombardia and Sardegna** region. The circulating strains belong to **Lineage 1 and Lineage 2.**

Region	Province	n.birds+
EMILIA ROMAGNA	Bologna	8
	Ferrara	7
	Modena	1
	Piacenza	6
LOMBARDIA	Pavia	1
	Varese	1
PIEMONTE	Cuneo	1
SARDEGNA	Nuoro	1
	Sassari	1
VENETO	Padova	24
	Rovigo	27
	Venezia	32
	Vicenza	2
	Verona	1
Total		113

Table 2 West Nile virus detection in wild birds - **2022**

Figure 3 Geographical distribution West Nile virus detection in wild birds- **2022**

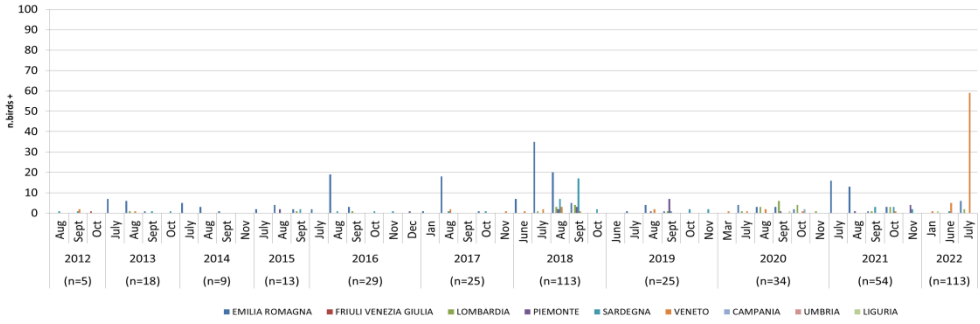


Figure 4 Spatio–temporal distribution West Nile virus detection in wild birds - **2022**

6 Entomological surveillance

WNV genome has been reported in **203 mosquitoes pool** collected in **Veneto, Emilia Romagna, Piemonte, Friuli Venezia Giulia and Lombardia** region**.** The circulating strains belong to **Lineage 1 and Lineage 2**.

Figure 5 Geographical distribution West Nile virus detection in mosquitoes - **2022**

Region	Province	n.pool+
EMILIA ROMAGNA	Bologna	8
	Forli Cesena	1
	Ferrara	13
	Modena	16
	Piacenza	12
	Parma	12
	Ravenna	3
	Reggio emilia	13
FRIULI VENEZIA GIULIA	Gorizia	1
	Pordenone	2
	Udine	3
LOMBARDIA	Brescia	3
	Como	1
	Lodi	1
	Mantova	5
	Pavia	5
PIEMONTE	Alessandria	4
	Asti	1
	Cuneo	2
	Novara	2
	Torino	1
	Vercelli	13
SARDEGNA	Oristano	1
VENETO	Padova	10
	Rovigo	29
	Treviso	4
	Venezia	25
	Vicenza	5
	Verona	7
Total		203

Table 3 West Nile virus detection in mosquitoes- **2022**

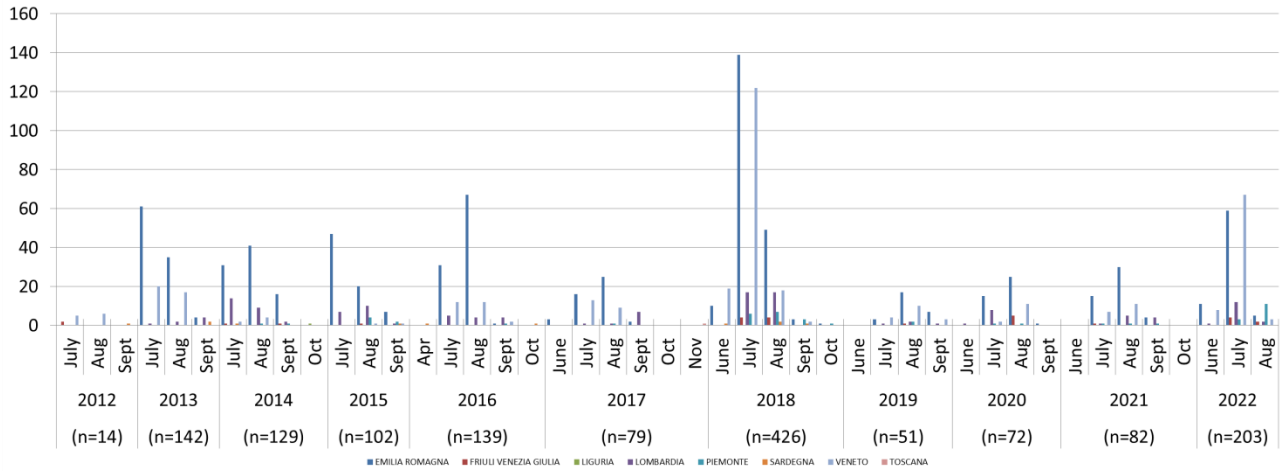


Figure 6 Spatio–temporal distribution West Nile virus detection in mosquitoes - **2022**

7

Poultry surveillance

- No WND outbreaks have been confirmed in poultry flocks.



8 USUTU virus surveillance

Usutu virus has been detected in **98 mosquitoes pool** and **51 wild birds** from **Emilia Romagna, Lombardia, Marche, Friuli Venezia Giulia, Sardegna, Umbria, Toscana, Lazio and Veneto** region.

Figure 7 Geographical distribution Usutu virus detection in birds and mosquitoes - **2022**

Regione	Provincia	n.pool+
MARCHE	Pesaro e Urbino	6
	Ancona	3
	Ascoli Piceno	1
	Macerata	3
EMILIA ROMAGNA	Modena	13
	Ferrara	2
	Ravenna	4
	Bologna	12
	Reggio Emilia	18
	Parma	5
FRIULI VENEZIA GIULIA	Pordenone	1
LAZIO	Latina	3
	Roma	3
	Frosinone	1
LOMBARDIA	Milano	1
	Brescia	2
UMBRIA	Terni	1
	Perugia	4
VENETO	Verona	4
	Treviso	1
	Padova	2
	Vicenza	2
TOSCANA	Pistoia	1
	Firenze	1
PIEMONTE	Alessandria	3
SARDEGNA	Nuoro	1
Totale	98	

Table 4 Usutu virus detection in mosquitoes **-2022**

Regione	Provincia	n.uccelli+
FRIULI VENEZIA GIULIA	Udine	3
VENETO	Vicenza	1
	Venezia	2
EMILIA ROMAGNA	Piacenza	1
	Bologna	15
	Ravenna	1
	Rimini	14
	Forlì Cesena	7
TOSCANA	Arezzo	3
MARCHE	Fermo	1
UMBRIA	Perugia	3
Totale		51

Table 4 Usutu virus detection in birds **-2022**

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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