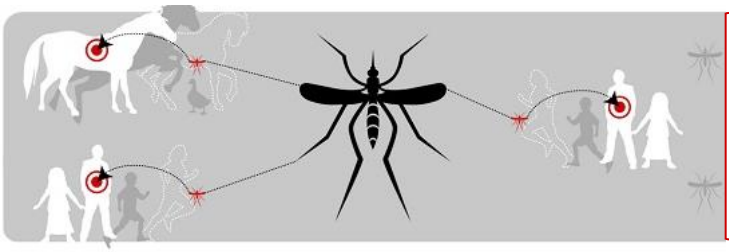


IZS TERAMO
NATIONAL REFERENCE CENTRE FOR EXOTIC DISEASES OF ANIMALS

ISTITUTO SUPERIORE DI SANITÀ

Integrated surveillance of West Nile and Usutu virus

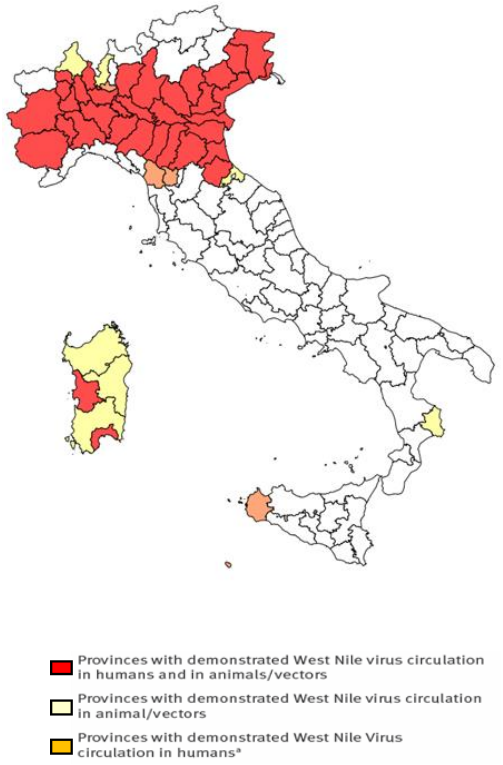
Epidemiological report no. 15 28 September 2022
National data

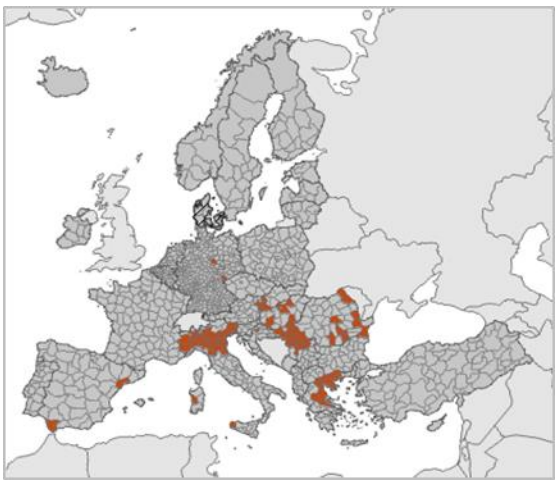
1 In Evidence

This report summarizes the results of West Nile virus and the Usutu virus surveillance activities in Italy, updated to **27-9-2022**

- Since the beginning of June 2022, **537** confirmed cases of West Nile Virus (WNV) infection in humans have been reported in Italy; of these **266** occurred in the neuro-invasive form (36 Piedmont, 24 Lombardy, 125 Veneto, 5 Friuli-Venezia Giulia, 66 Emilia-Romagna, 3 Tuscany, 1 Sicily, 6 Sardinia), **80** cases identified in blood donors (13 Piedmont, 23 Lombardy, 26 Veneto, 18 Emilia-Romagna), **180** cases of fever (4 Piedmont, 10 Lombardy, 151 Veneto, 12 Friuli-Venezia Giulia, 2 Emilia-Romagna, and 1 case imported from Spain), 10 cases symptomatic (1 Lombardy, 8 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, **28 deaths** were reported (5 Piedmont, 5 Lombardy, 14 Veneto, 1 Friuli-Venezia Giulia, 3 Emilia-Romagna). In the same period**, 5 cases of Usutu virus** were reported (3 Friuli-Venezia Giulia, 1 Piedmont, asymptomatic in blood donors) (1 Emilia-Romagna with confirmed fever).
- Surveillance in mosquitoes, resident birds, wild birds, poultry and horses confirmed the circulation of WNV in **Calabria,Piemonte Veneto, Emilia Romagna, Lombardia, Friuli Venezia Giulia and Sardegna** region. Molecular analysis confirmed **Lineage 2** and **Lineage 1** circulation.
- As of 21 September 2022, 744 human cases of WNV have been reported in the EU Member States (474 Italy, 231 Greece, 38 Romania, 12 Hungary, 6 Croatia, 6 Austria, 3 Germany, 3 Spain, 1 Slovakia) of which 51 deaths (28 Italy, 20 Greece, 3 Romania). 169 cases were reported from neighboring countries (169 Serbia) and 8 deaths (Source: ECDC 2022).

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





2 Human

Since June 2022, the start of surveillance, **537** of West Nile Virus (WNV) infection have been reported in Italy, **266** WNND (Table 1) all autochthonous cases, **80** identified in blood donors and **180** 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		1		3	**5**
Asti					3	**3**
Biella				1		**1**
Cuneo			2	1		**3**
Novara			2		9	**11**
Torino			3	1	2	**6**
Vercelli			1	1	5	**7**
Lombardia						
Bergamo			1		1	**2**
Brescia			1	2	2	**5**
Cremona				1	3	**4**
Lodi				1		**1**
Mantova					2	**2**
Milano		1	2		1	**4**
Pavia			1	1	2	**4**
Varese					2	**2**
Veneto						
Padova		3	12	19	43	**77**
Rovigo				4	8	**12**
Treviso		1	2		1	**4**
Venezia			1	5	10	**16**
Verona		1	3	2	2	**8**
Vicenza			1		7	**8**
Friuli-Venezia Giulia						
Gorizia					1	**1**
Pordenone				1	3	**4**
Emilia-Romagna						
Bologna			2	1		**3**
Ferrara			1	7	7	**15**
Forli-Cesena			1			**1**
Modena		1	3	6	2	**12**
Parma			1	4	3	**8**
Piacenza			2	4	7	**13**
Ravenna			3	2	4	**9**
Reggio Emilia		1	1	1	2	**5**
Toscana						
Lucca		1				**1**
Pistoia					2	**2**
Sicilia						
Trapani				1		**1**
Sardegna						
Cagliari					1	**1**
Oristano				2	3	**5**
Total	**1**	**9**	**47**	**68**	**141**	**266**

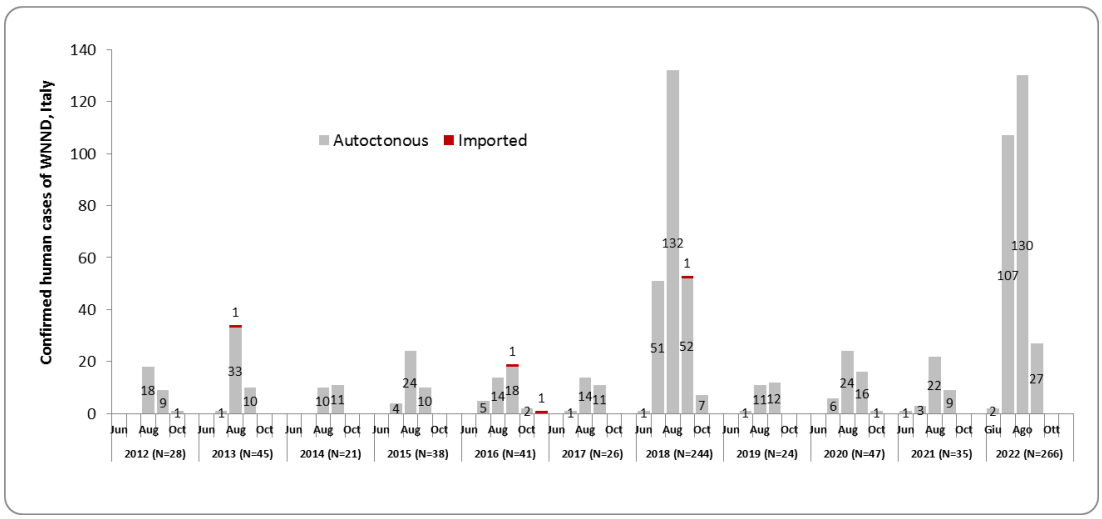


Figure 1. Trend of confirmed cases of WNND by month onset of symptoms. Italy: 2012 - 2022**.**

3 Horses

36 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 outbre	Outbreaks details				Prevalence (%)	Letality (%)
				Susceptible	N.cases	Clinical cases	Death/ slaughtered		
VENETO	Padova	6	6	72	7	7	0	9,72	0
	Venezia	2	2	105	2	2	1	1,90	0
	Treviso	2	2	94	2	2	0	2,13	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
	Varese	1	1	17	1	1	0	0,06	0
	Brescia	5	5	77	5	5	2	0,06	40
EMILIA ROMAGNA	Bologna	1	1	2	1	1	1	0,50	50
	Ferrara	1	1	39	2	2	0	0,05	0
	Piacenza	1	1	101	2	2	0	0,02	0
	Parma	1	1	46	1	1	1	0,02	100
FRIULI VENEZIA GIULIA	Pordenone	1	1	30	1	1	0	0,03	0
	Udine	2	2	38	4	4	0	0,11	0
PIEMONTE	Cuneo	2	2	144	4	4	2	0,03	0
	Torino	3	3	19	3	3	2	0,16	67
	Asti	1	1	41	1	1	1	0,02	100
	Biella	1	1	24	1	1	0	0,04	0
	Novara	1	1	9	1	1	0	0,11	0
Totale		36	36	923	43	43	11	0,05	25,58

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 **119** 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)***

Region	Province	Carrion Crow	Magpie	Jay	n.birds+
EMILIA ROMAGNA	Piacenza	0	3	0	3
	Bologna	2	3	2	7
	Ferrara	4	19	1	24
	Ravenna	0	8	1	9
	Parma	6	3	0	9
	Rimini	0	3	0	3
	Reggio Emilia	3	4	0	7
LOMBARDIA	Mantova	1	0	0	1
	Milano	1	0	0	1
VENETO	Vicenza	2	3	0	5
	Verona	6	3	0	9
	Venezia	3	0	4	7
	Padova	7	3	1	11
	Rovigo	3	2	1	6
PIEMONTE	Alessandria	1	0	0	1
	Novara	1	0	0	1
	VCO	0	0	1	1
	Cuneo	1	0	0	1
SARDEGNA	Sud Sardegna	5	0	0	5
	Sassari	1	0	0	1
	Oristano	1	0	0	1
FRIULI VENEZIA GIULIA	Udine	6	0	0	6
Total		54	54	11	119

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

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

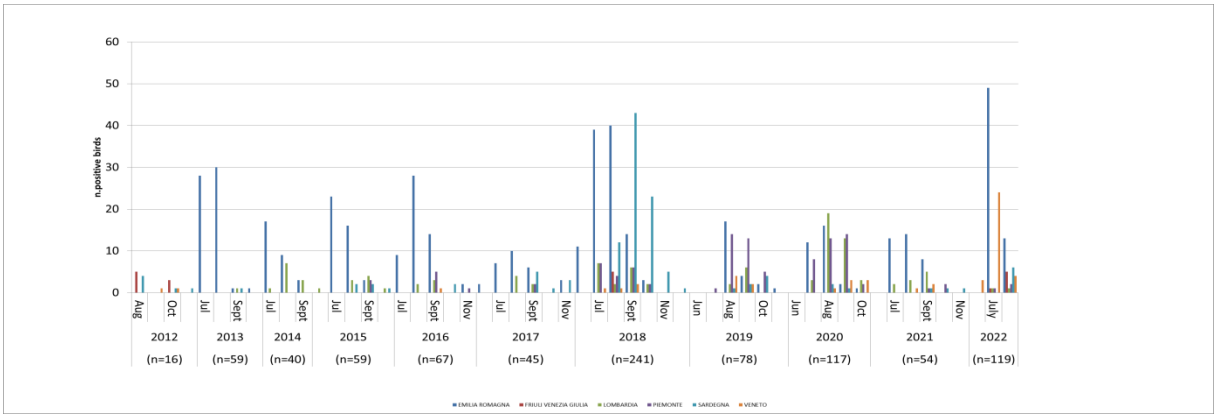


Figure 2 Spatio–temporal distribution West Nile virus detection in birds belong to target species - **2022**

5

Wild birds

CESME confirmed WNV in **155 wild birds** from **Veneto, Emilia Romagna, Lombardia and Sardegna** region. The circulating strains belong to **Lineage 1 and Lineage 2.**

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

Region	Province	n.birds+
EMILIA ROMAGNA	Bologna	13
	Ferrara	13
	Modena	1
	Piacenza	9
LOMBARDIA	Bergamo	1
	Brescia	5
	Pavia	1
	Varese	1
PIEMONTE	Cuneo	1
	VCO	2
SARDEGNA	Nuoro	1
	Oristano	2
	Sassari	2
VENETO	Padova	32
	Rovigo	31
	Venezia	39
	Vicenza	2
	Verona	1
Total		155

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

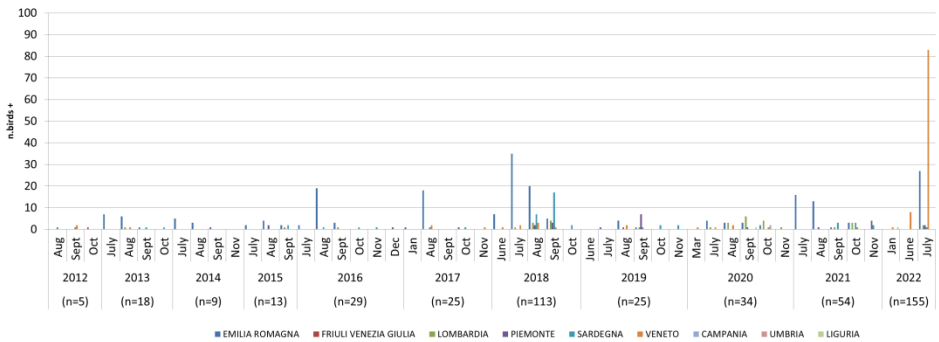


Figure 4 Spatio–temporal distribution West Nile virus detection in wild birds - **2022**

6 Entomological surveillance

WNV genome has been reported in **230 mosquitoes pool** collected in **Veneto, Emilia Romagna, Sardegna, 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	10
	Ferrara	14
	Modena	17
	Piacenza	12
	Ravenna	5
	Forlì Cesena	1
	Parma	13
	Reggio Emilia	13
FRIULI VENEZIA GIULIA	Udine	3
	Pordenone	2
	Gorizia	1
LOMBARDIA	Brescia	3
	Lodi	1
	Como	1
	Mantova	5
	Pavia	5
PIEMONTE	Cuneo	4
	Asti	1
	Alesandria	7
	Vercelli	16
	Torino	4
	Novara	4
VENETO	Padova	11
	Rovigo	30
	Venezia	27
	Vicenza	5
	Verona	7
	Treviso	7
SARDEGNA	Oristano	1
Total		230

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

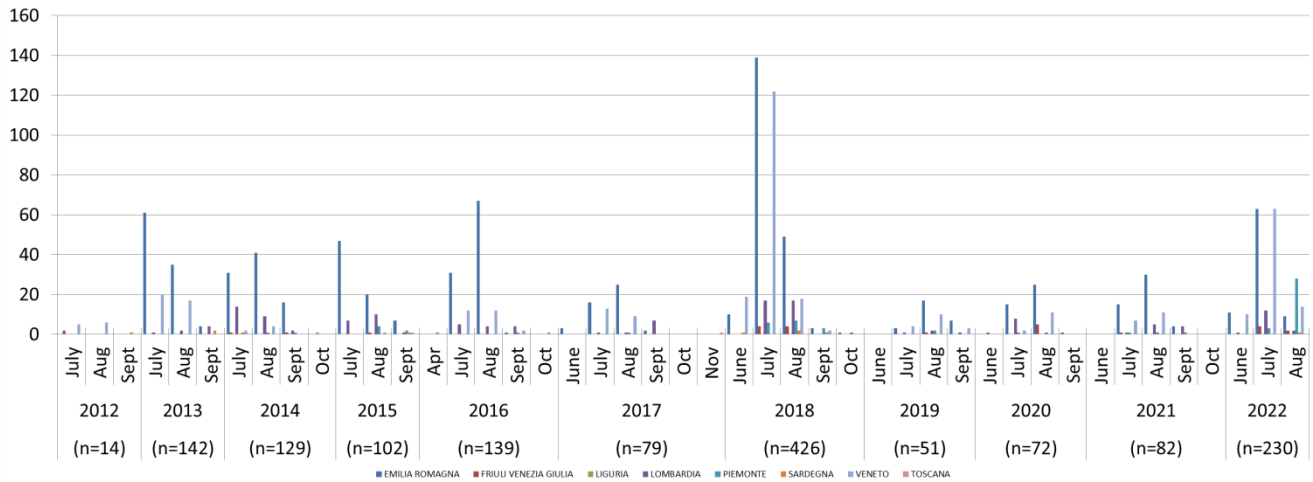


Figure 6 Spatio–temporal distribution West Nile virus detection in mosquitoes - **2022**

7

Poultry surveillance

- CESME confirmed 2 WND outbreaks in poultry flocks in **Crotone** province.



8 USUTU virus surveillance

Usutu virus has been detected in **126 mosquitoes pool** and **97 wild birds** from **Abruzzo, Piemonte, Emilia Romagna, Lombardia, Marche, Friuli Venezia Giulia, Sardegna, Umbria, Toscana, Lazio and Veneto** region.

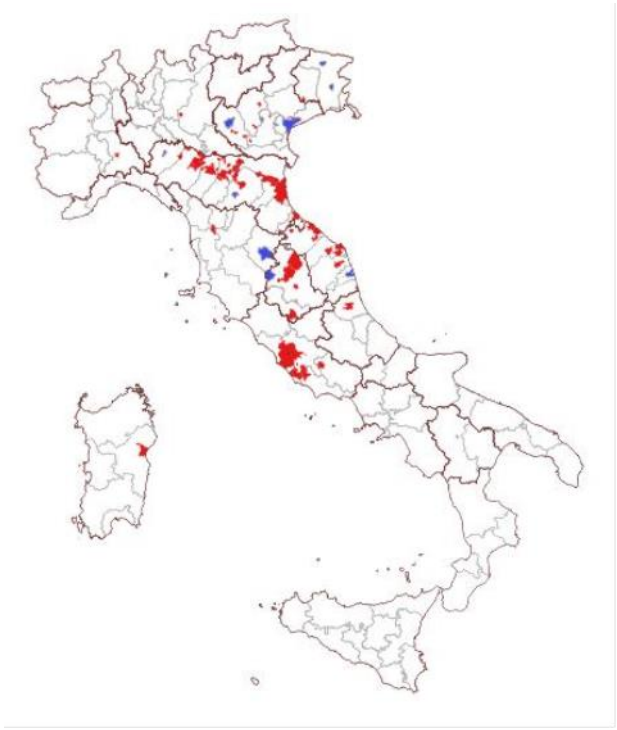


Figure 7 Geographical distribution Usutu virus detection in birds and mosquitoes - **2022**

Region	Province	n.pool+
MARCHE	Pesaro e Urbino	6
	Ancona	3
	Ascoli Piceno	1
	Macerata	3
EMILIA ROMAGNA	Modena	14
	Rimini	2
	Piacenza	2
	Ferrara	2
	Ravenna	4
	Bologna	16
	Reggio Emilia	18
	Parma	6
FRIULI VENEZIA GIULIA	Pordenone	3
LAZIO	Latina	5
	Roma	3
	Frosinone	1
LOMBARDIA	Milano	1
	Brescia	2
UMBRIA	Terni	1
	Perugia	4
VENETO	Verona	4
	Venezia	2
	Treviso	2
	Padova	3
	Vicenza	2
TOSCANA	Pistoia	1
	Firenze	1
PIEMONTE	Novara	1
	Cuneo	1
	Torino	2
	Alessandria	4
SARDEGNA	Nuoro	1
ABRUZZO	Pescara	1
	Teramo	4
Totale	126	

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

Region	Province	n.birds+
FRIULI VENEZIA GIULIA	Udine	5
VENETO	Vicenza	2
	Padova	2
	Verona	3
	Rovigo	1
	Venezia	2
EMILIA ROMAGNA	Piacenza	2
	Bologna	25
	Reggio Emilia	1
	Ravenna	2
	Rimini	33
	Forlì Cesena	7
TOSCANA	Arezzo	3
MARCHE	Fermo	2
LAZIO	Latina	1
LOMBARDIA	Bergamo	1
UMBRIA	Perugia	4
PIEMONTE	Alessandria	1
Total		97

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

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