

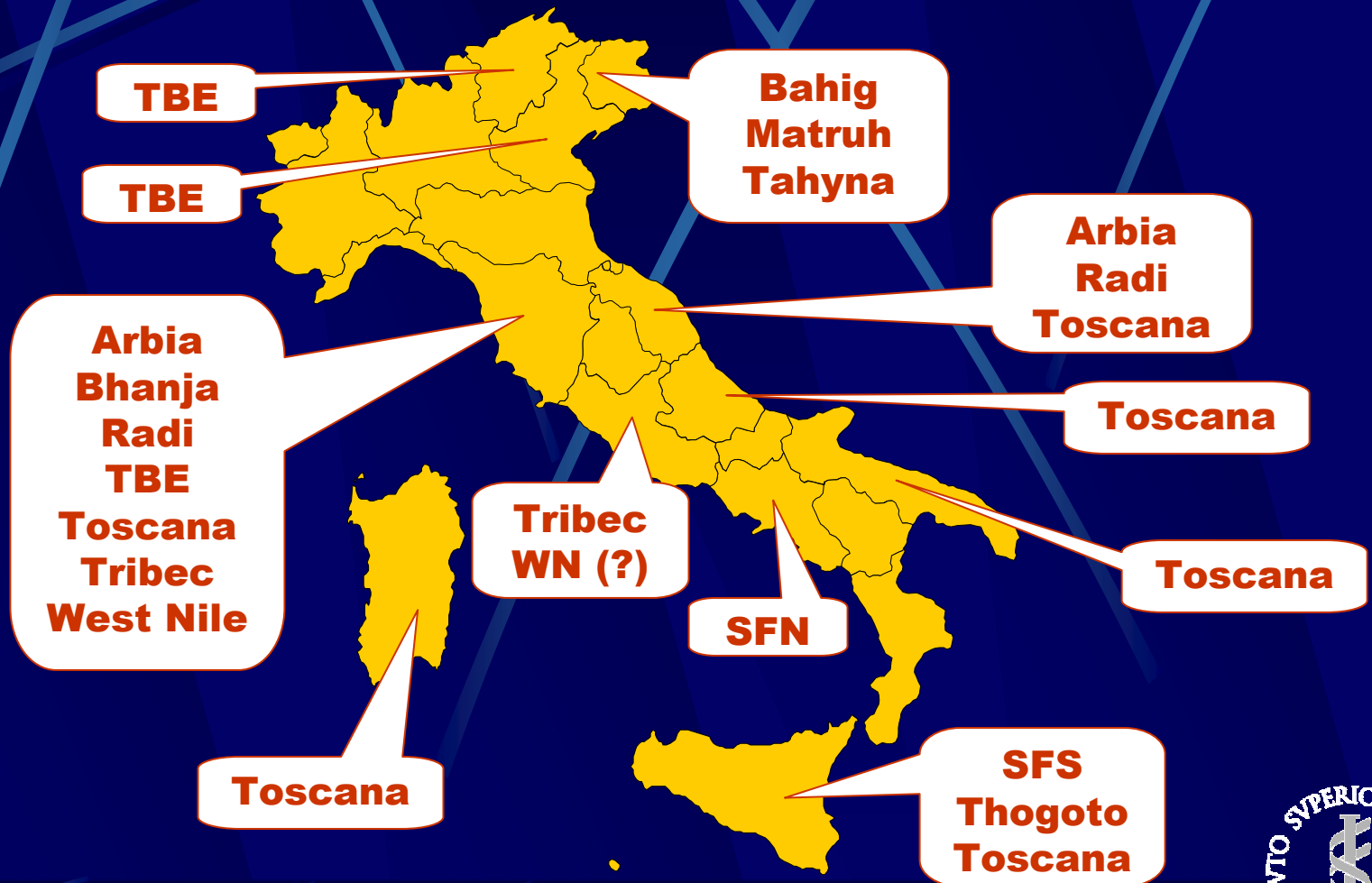


# **Arboviruses in Italy**

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# Arboviruses in Italy



# Viruses isolated from birds in Italy



Family/ Genus	Virus	Sources of isolation		
		Year	Place	Species
<b>Bunyaviridae</b> <i>Bunyavirus</i>	Bahig	1968- 1969	Friuli	Fringillidae
	Matruh	1968- 1969	Friuli	Fringillidae

# Mosquito-borne virus isolated in Italy



Family/ Genus	Virus	Sources of isolation		
		Year	Place	Species
<b>Bunyaviridae</b> <i>Bunyavirus</i>	Tahyna	1967	Friuli	<i>Aedes</i> spp.
<b>Flaviviridae</b> <i>Flavivirus</i>	West Nile	1969 1999	Lazio Tuscany	Ticks Horse

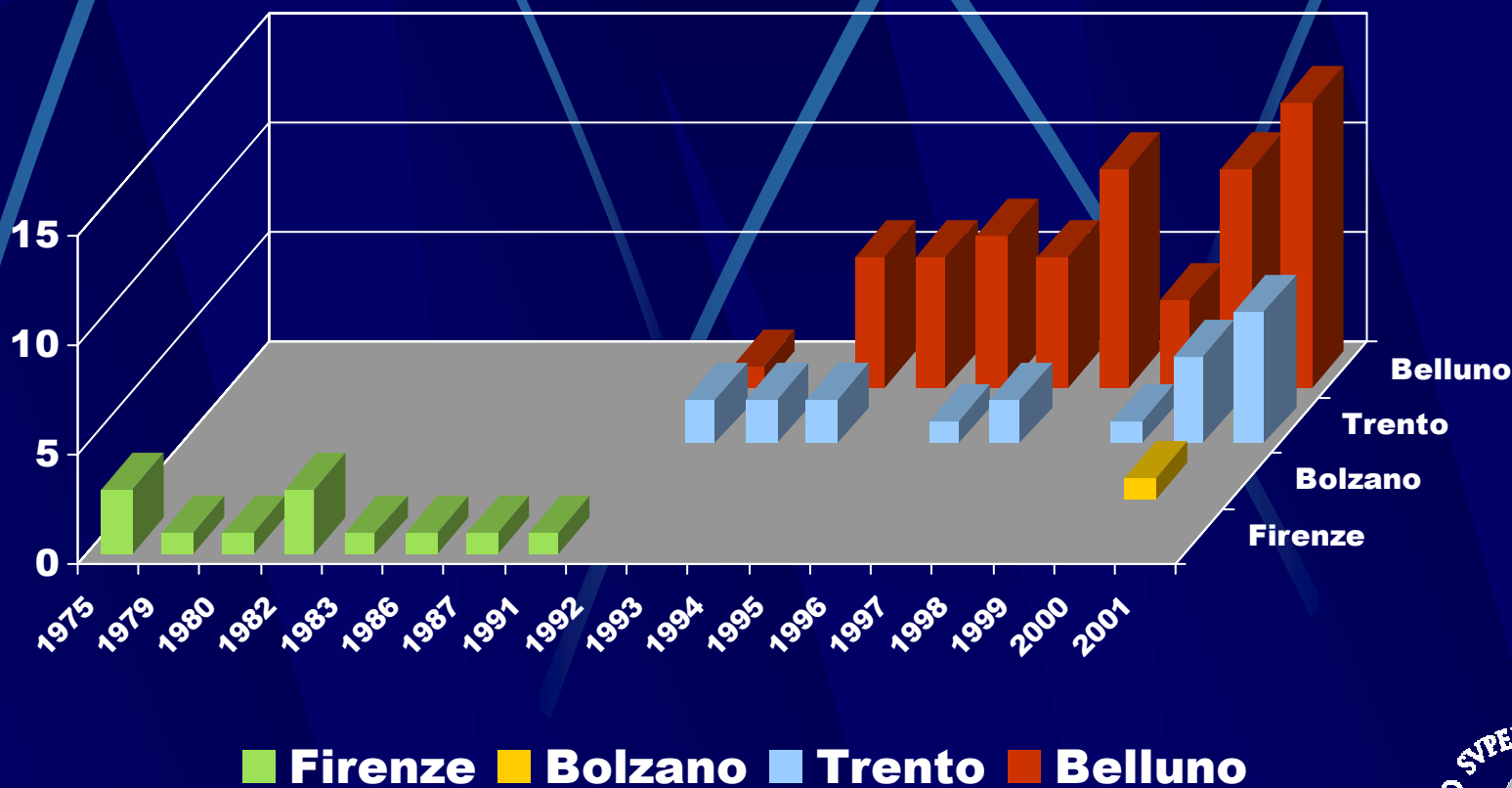
# Tick-borne viruses isolated in Italy



Family/ Genus	Virus	Sources of isolation		
		Year	Place	Species
<b>Flaviviridae</b> <i>Flavivirus</i>	TBE	1978	Tuscany	<i>Ixodes ricinus</i>
		1994	Trentino	
		1998-2002	Veneto	
<b>Bunyaviridae</b> Ungrouped	Bhanja	1967	Lazio	<i>Haemaphysalis punctata</i>
		1973	Tuscany	
<b>Orthomyxoviridae</b> <i>Orthomyxovirus</i>	Thogoto	1969	Sicily	<i>Rhipicephalus bursa</i>
<b>Reoviridae</b> <i>Orbivirus</i>	Tribec	1972	Friuli	<i>Ixodes ricinus</i>
		1977	Tuscany	



# Cases of TBE meningoencephalitis diagnosed in Italy



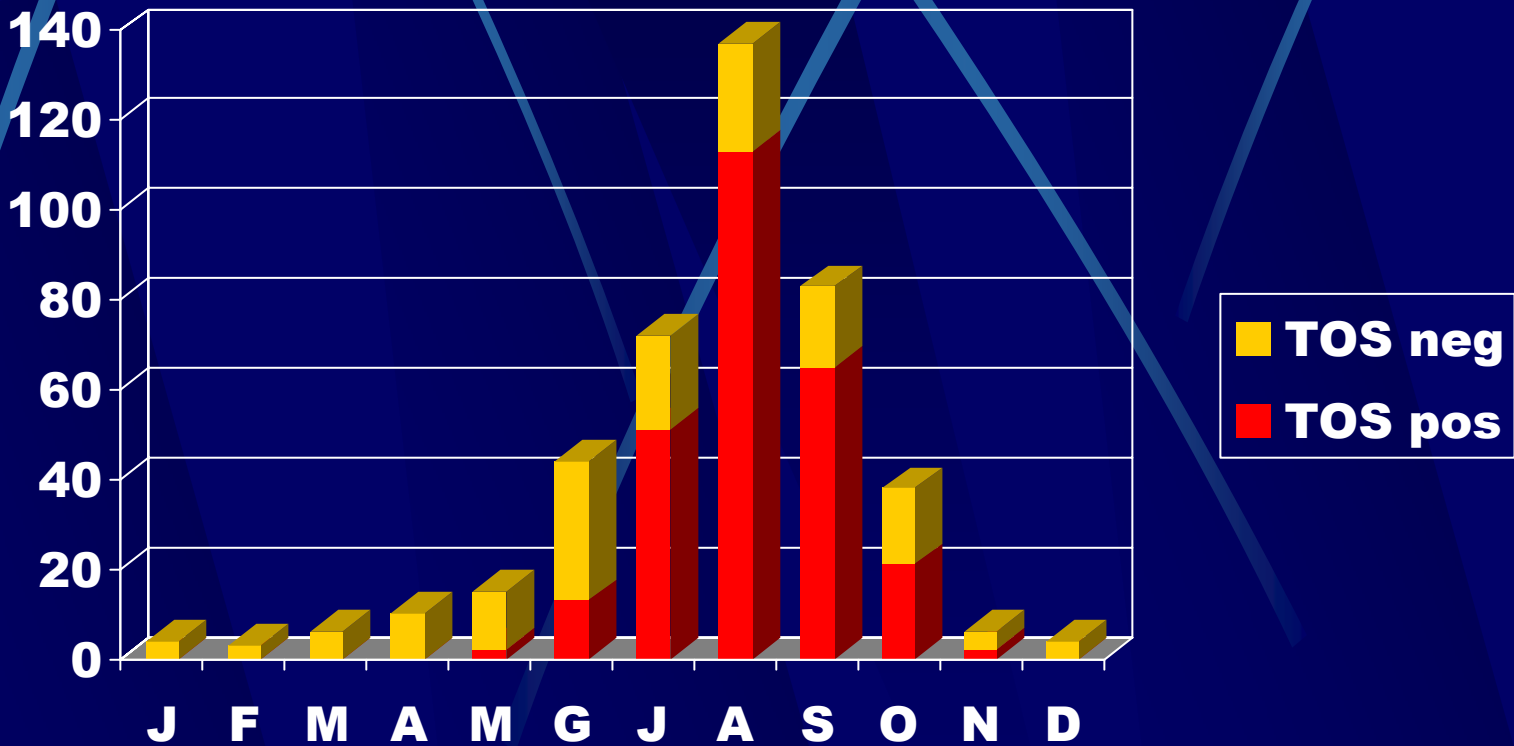
# Sand fly-borne viruses isolated in Italy



Family/ Genus	Virus	Sources of isolation		
		Year	Place	Species
<b>Bunyaviridae</b> <i>Phlebovirus</i>	Arbia	1981-	Tuscany	<i>P. perniciosus</i>
		1994	Marche	<i>P. perfiliewi</i>
	Sandfly fever Naples	1944	Campania	Human
	Sandfly fever Sicilian	1943	Sicily	Human
	Toscana	1971- 2002	Cantral and Southern Italy	<i>P. perniciosus</i> <i>P. perfiliewi</i> Human
<b>Rhabdoviridae</b> <i>Vesiculovirus</i>	Radi	1983-	Tuscany	<i>P. perniciosus</i>
		1994	Marche	<i>P. perfiliewi</i>

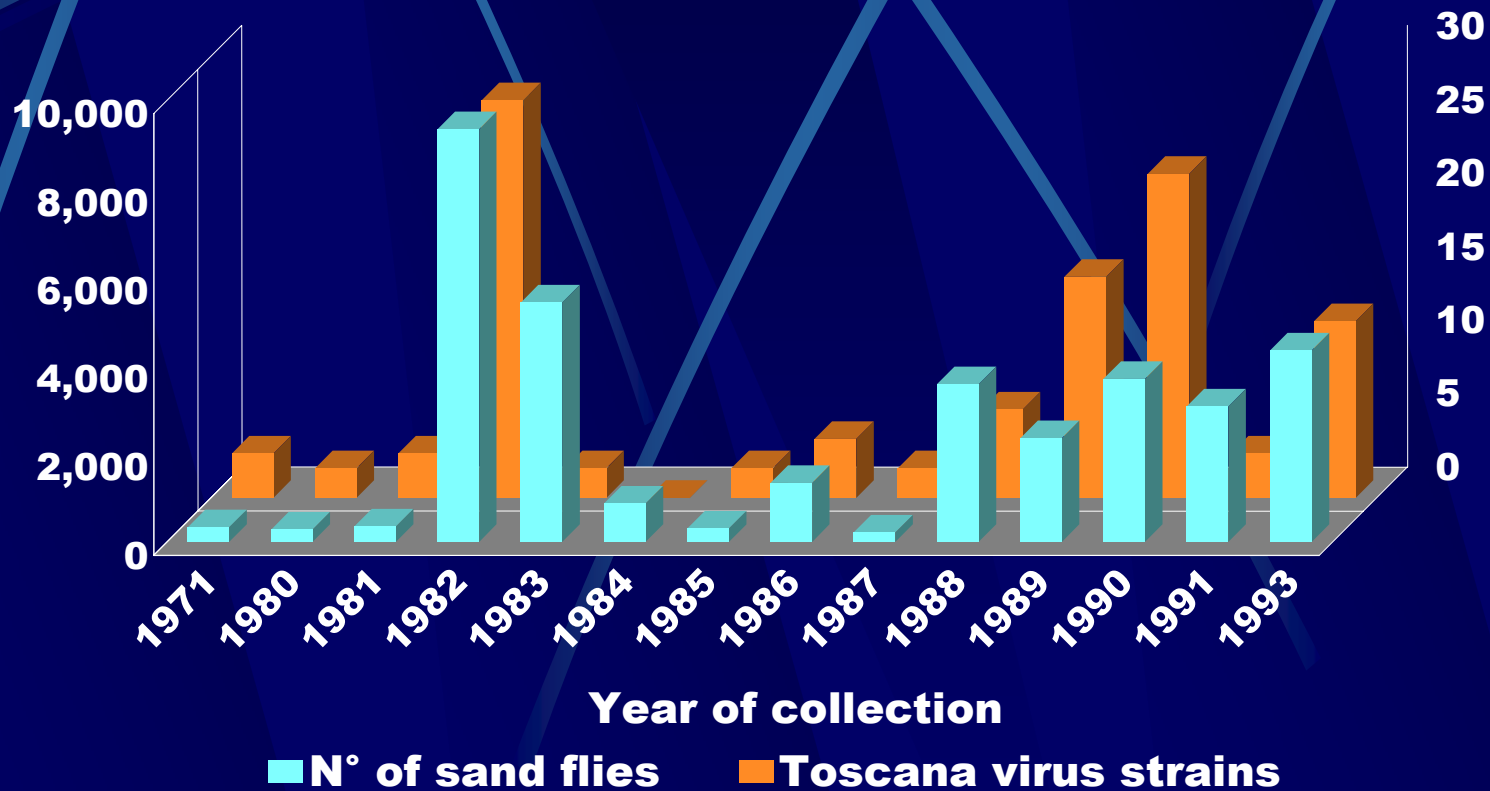


# Monthly distribution of Toscana virus infections (1991-1998)





# Toscana virus strains isolated from sand flies in Italy



# WN Surveillance and Control Project in Tuscany Region

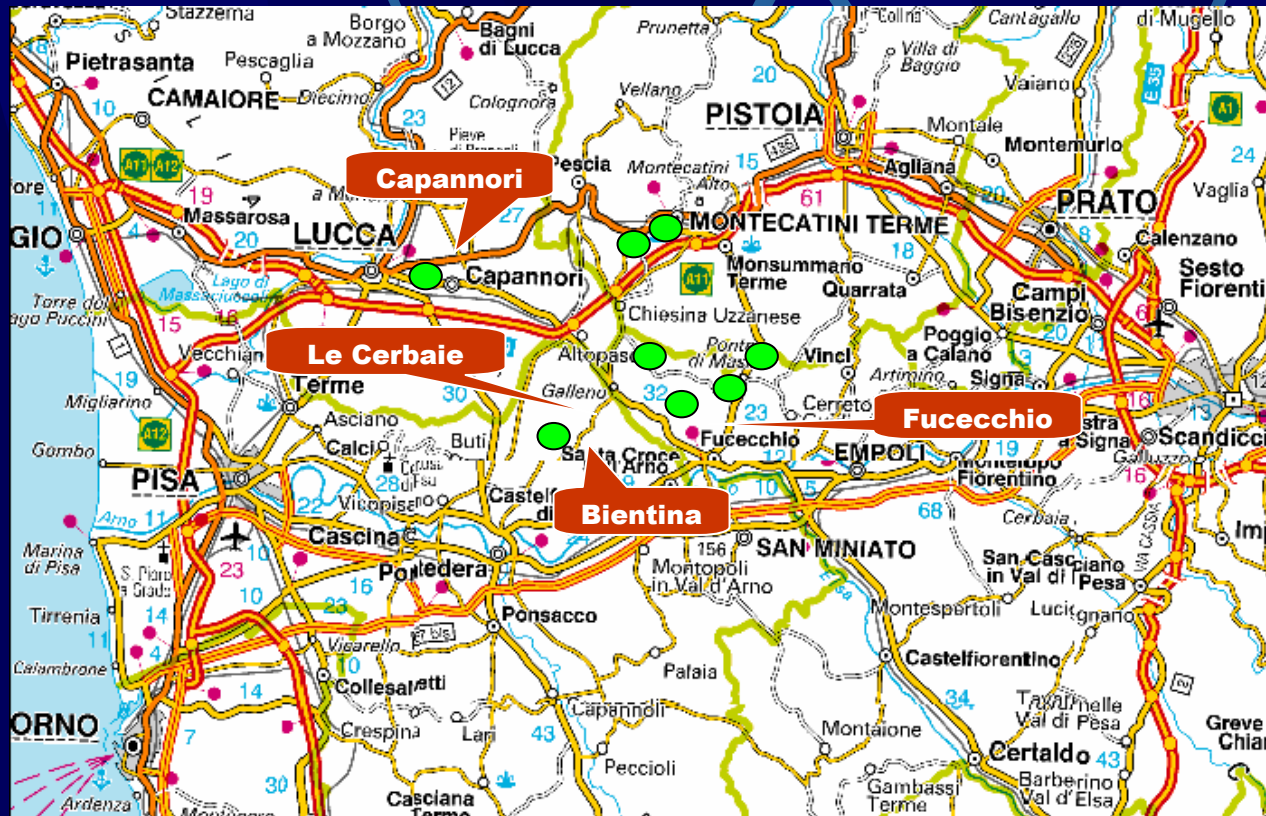
## ● Mosquitoes

- Isolation (suckling mice, Vero, C6/36)
- RT-PCR

## ● Humans

- Neurological cases
  - Isolation (suckling mice, Vero, C6/36)
  - RT-PCR
  - Serology (HI, ELISA, PRNT)
- “At risk” people (retrospective)
  - Serology (HI, ELISA, PRNT)

# WN foci and sites of mosquito collection (1)



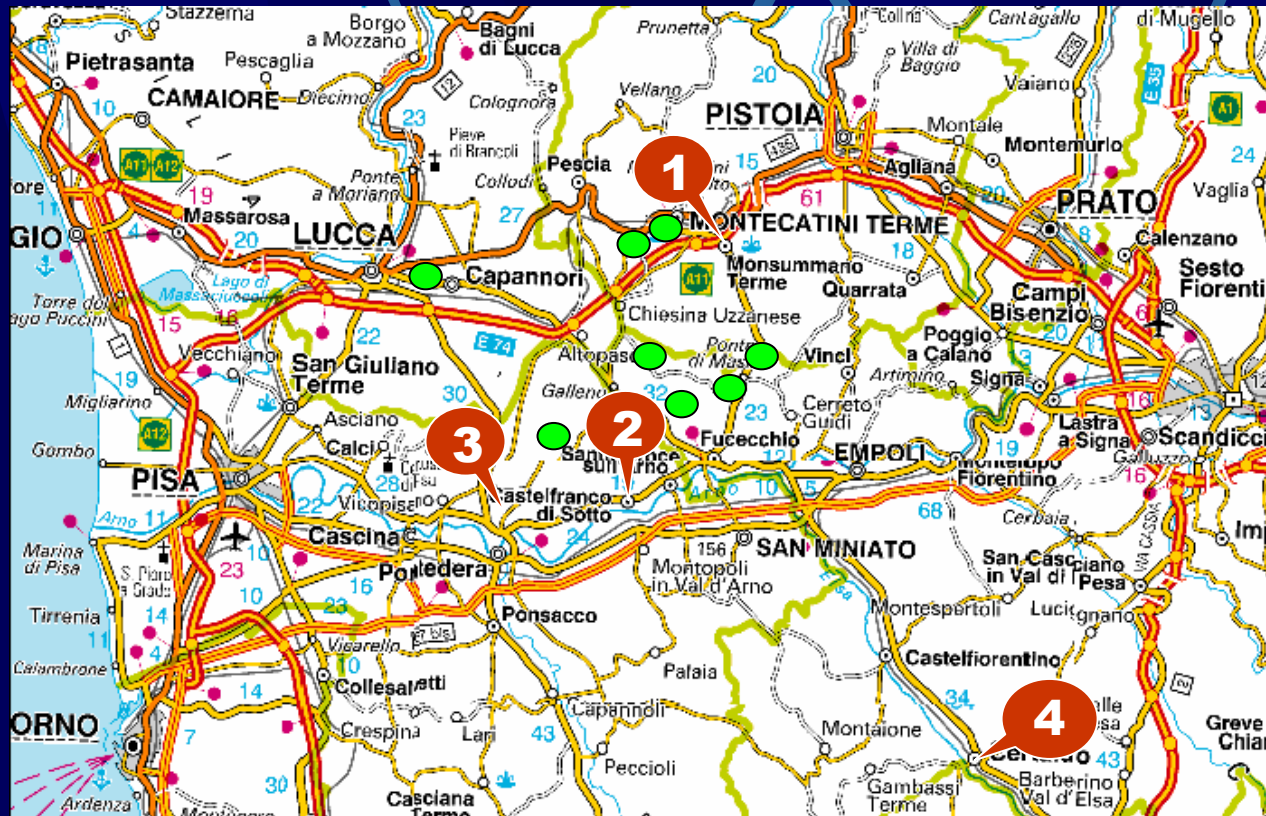
# Mosquito processed for virus isolation

	<i>Culex pipiens</i>	<i>Culex impudicus</i>	<i>Anopheles maculipennis</i>	<i>Aedes caspius</i>	Total
<b>Le Cerbaie</b>	129	39	43	0	211
<b>Padule di Fucecchio</b>	120	0	0	0	120
<b>Padule Bientina</b>	55	21	0	33	109
<b>Capannori</b>	0	0	0	225	225
<b>Total</b>	304	60	43	258	665

Tested by: Suckling mice, Vero and C6/36 inoculation; RT-PCR



# WN foci and sites of mosquito collection (2)



# Mosquito processed for virus detection by RT-PCR

Locality	Year	N° of insects*
Site N° 1	2000	2437
Site N° 2	1999	840
	2000	704
Site N° 3	2000	162
Site N° 4	2000	132
Total		4275

\*83.9 % *Culex pipiens*, 16.1 % *Culiseta anulata*, *Anopheles macullipennis* and *Aedes caspius*.



# Human cases investigated for West Nile virus infection

Positive/tested

Locality	N°	Mouse	Vero	C6/36	RT-PCR
Pisa	8	0/8	0/8	0/8	0/8
Lucca	1	0/1	0/1	0/1	0/1
Pistoia	2	0/2	0/2	0/2	0/2
Total	11				

# Human cases investigated for West Nile virus infection

Positive/tested

Locality	N°	Positive/tested		
		HI	ELISA	PRNT
Pisa	8	0/8	0/8	n.d.
Lucca	1	0/1	0/1	n.d.
Pistoia	2	0/2	0/2	n.d.
Total	11	0/11	0/11	n.d.



# “At risk” humans investigated for West Nile virus infection

Positive/tested

Locality	N°	HI	ELISA	PRNT
Pisa	9	6(±)/9	0/9	0/6
Lucca	3	0/3	0/3	n.d.
Pistoia	114	6/81	9/114	4/9
Total	126			

# WN strategic plan

## ● Animals (active)

- Serosurvey on horses and birds
- Mosquito collection in areas where newly infected animals are detected

## ● Humans (under discussion)

- Survey on neurologic cases of unknown origin occurring during late spring-autumn
- Serosurvey on “at risk” workers

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