



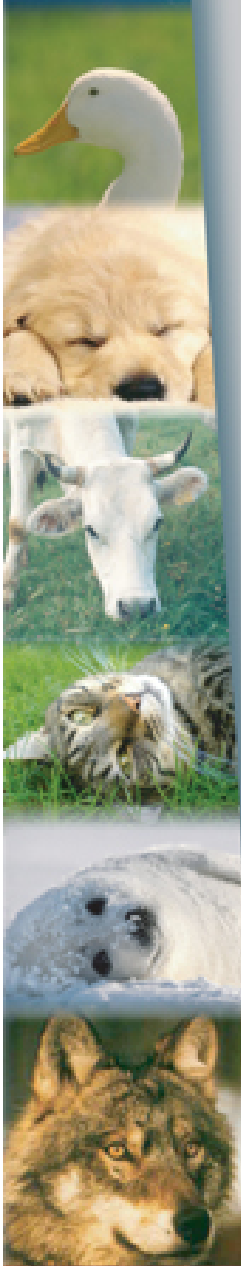
WEST NILE IN ITALY





West Nile Virus (WNV)

- ❑ WNV is the **most widespread** arbovirus in the world;
- ❑ it is a **mosquito-borne infection** that can result in fatal encephalitis **in humans, horses, and domestic and wild birds**;
- ❑ wild **birds** serve as **amplifying** hosts for the virus in nature;
- ❑ **zoonosis**;



2008 outbreak

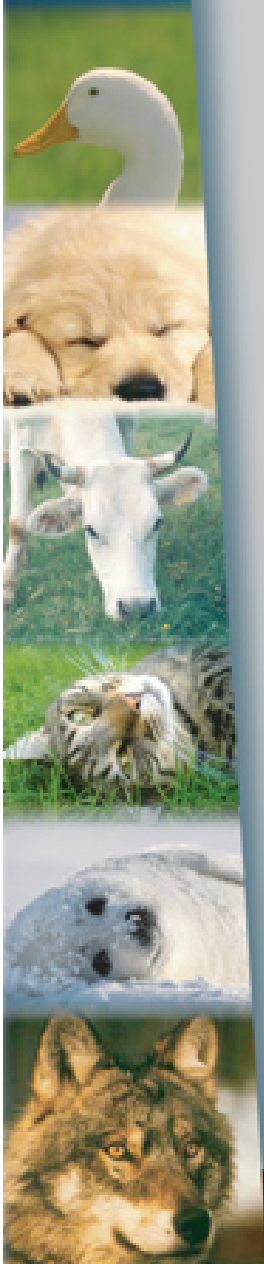
- ❑ After the epidemic in Tuscany, no further WNV clinical outbreaks were observed in Italy until **August-September 2008**;
- ❑ 20th of August 2008 **first suspicion of West Nile encephalitis in horse stable** in Ferrara Province
 - ✓ closer to Po river and less than **50 km far from the Comacchio wetlands**, one of those at risk areas selected in WNV national surveillance program.



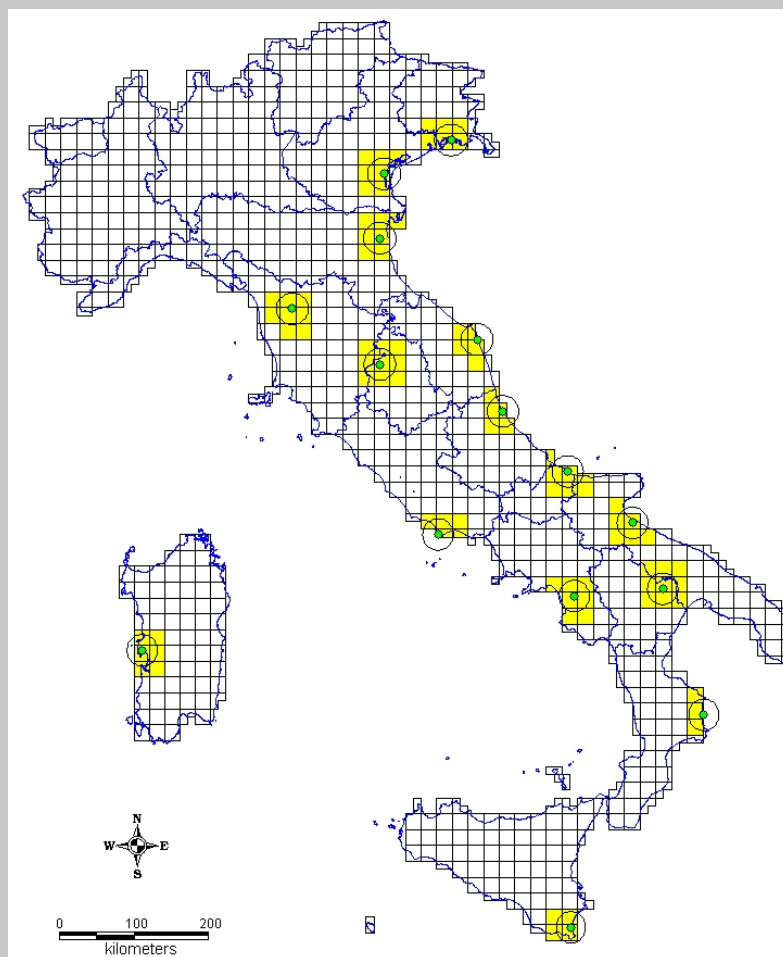
Italian outbreaks

Outbreaks **2008**;

Outbreaks **1998**;



Areas at risk included in the WND national surveillance plan





WND suspected case definition

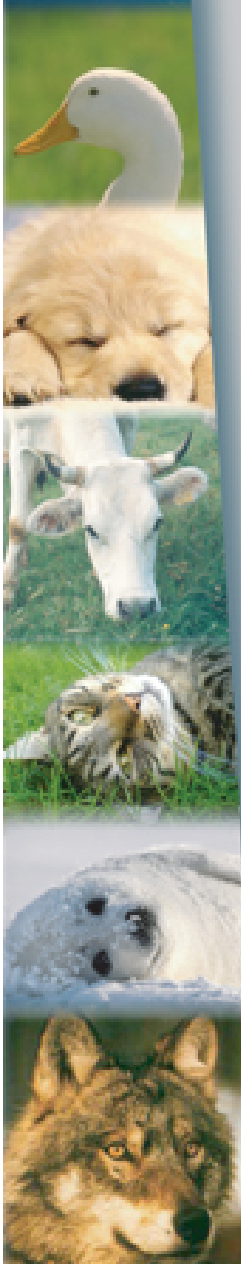
Equidae with ataxia or unexpected dead in infected area or showing at least two of the following symptoms:

- ◆ Circle movements
- ◆ Rear limbs weakness
- ◆ Impossibility to maintain four-footed position
- ◆ Limbs paralysis
- ◆ Muscles tremors
- ◆ Sensitivity deficits
- ◆ Blindness
- ◆ Paralysis of facial/labial muscles
- ◆ Teeth grinding

- ◆ **Equidae no showing symptoms, serologically positive (Elisa test) – new provision laid down in the Order of the Ministry of 5.11.08 concerning the extraordinary surveillance plan.**

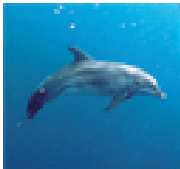


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WND confirmed case definition

A suspected case is confirmed when an its sample is positive at one of the confirmation tests (SN – PCR) carried out by the National Reference Laboratory for Exotic Diseases – IZS Teramo



Surveillance activities: strengthening in the area at risk

Following the confirmation of first outbreak, the following surveillance activities were activated in the area at risk and laid down in an Order of the Ministry 5 november 2008:

- ◆ Surveillance on neurological cases in horses
- ◆ Surveillance on wild birds found dead or captured within the framework of other monitoring plans (e.g. avian influenza)
- ◆ Test of sentinel chickens and horses
- ◆ Test of bovine sentinel animals selected within the framework of bluetongue surveillance plan
- ◆ Test of horses selected within the framework of Equine Infectious Anemia surveillance plan
- ◆ Entomological surveillance
- ◆ Voluntary inactivated vaccination

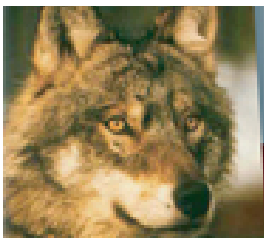


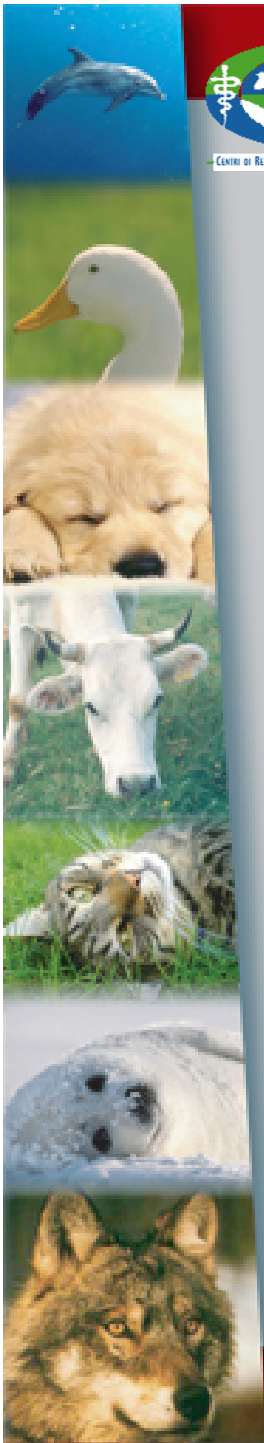
2008 WND epidemic

Table 2. Number of West Nile virus (WNV) serologically positive stables and confirmed neurological equine cases detected in the area under surveillance

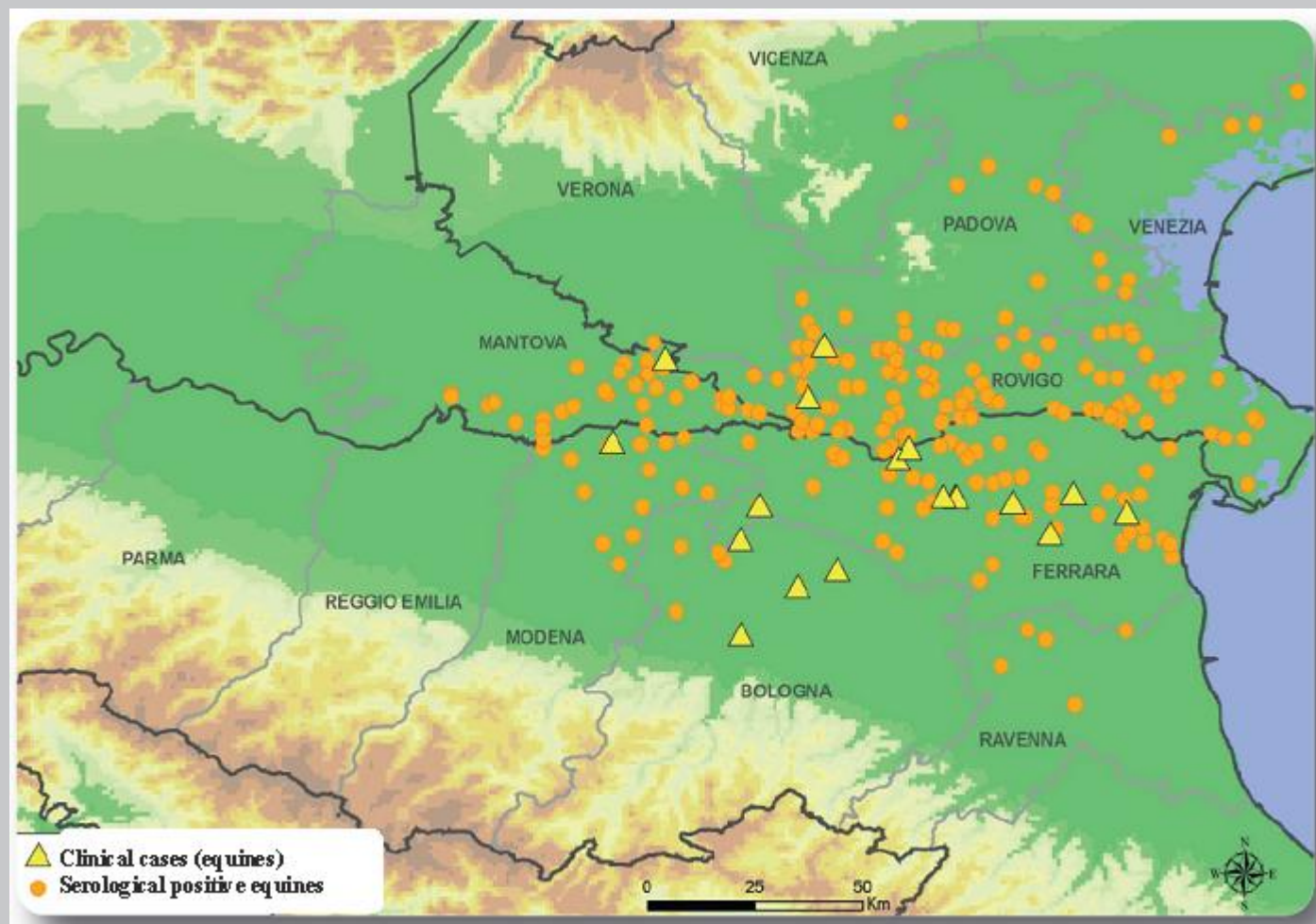
| Regions | Provinces | Total no. positive stables (1) | No. stables where WNV clinical signs were observed (2) | No. equine animals | | | | % positive animals showing clinical signs (5/4) | Case-fatality rate (%) (6/5) | |
|--------------|-----------|--------------------------------|--|--------------------|------------------|----------------------------|----------|---|------------------------------|-------------|
| | | | | Tested (3) | Positive (4) | Showing clinical signs (5) | Dead (6) | | | |
| Emilia | Ferrara | 64* | 10 | 698 | 320 ^a | 16 | 2 | 45.8 | 5.0 | 12.5 |
| Romagna | Ravenna | 5* | 0 | 59 | 10 ^a | 0 | 0 | 16.9 | 0.0 | |
| | Bologna | 23 | 4 | 448 | 128 | 6 | 1 | 28.6 | 4.7 | 16.7 |
| | Modena | 17 | 1 | 241 | 33 | 1 | 0 | 13.7 | 3.0 | 0.0 |
| Veneto | Rovigo | 77 | 1 | 278 | 161 | 1 | 0 | 57.9 | 0.6 | 0.0 |
| | Padova | 21 | 1 | 92 | 37 | 1 | 0 | 40.2 | 2.7 | 0.0 |
| | Venezia | 8 | 0 | 58 | 20 | 0 | 0 | 34.5 | 0.0 | |
| Lombardy | Mantova | 36 | 1 | 156 | 85 | 7 | 2 | 54.5 | 8.2 | 28.6 |
| Total | | 251 | 18 | 2030 | 794 | 32 | 5 | 39.1 | 4.0 | 15.6 |

*Eleven seroconverted sentinel horses in seven stables (Ferrara: 10 horses in six stables; Ravenna: one horse in one stable) are included.



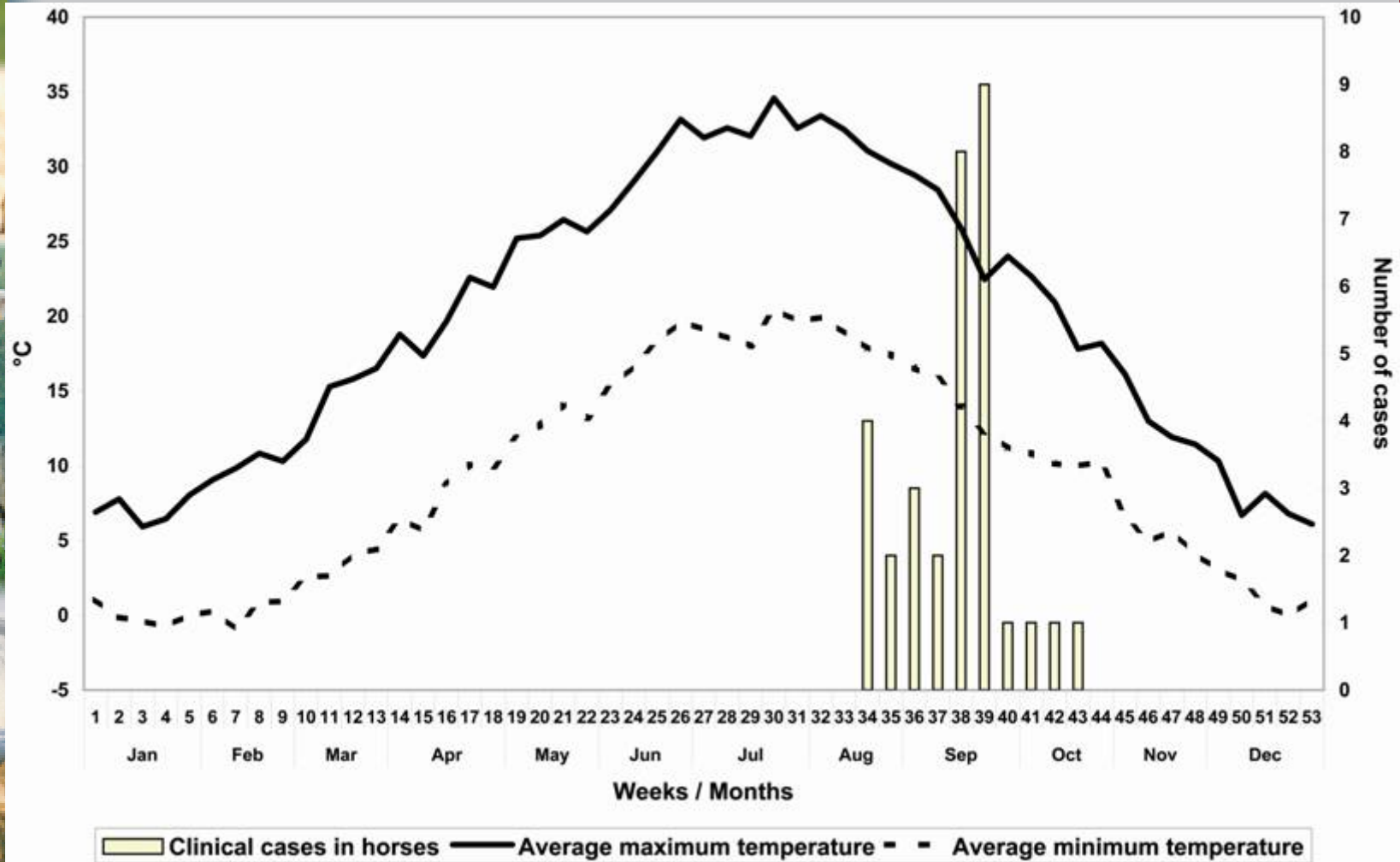


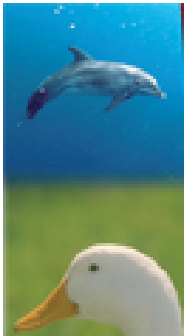
2008 WND epidemic





2008 WND epidemic



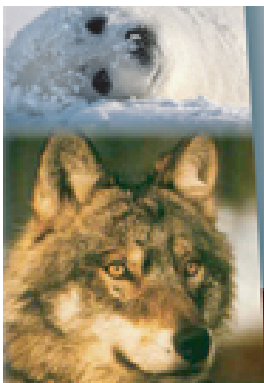


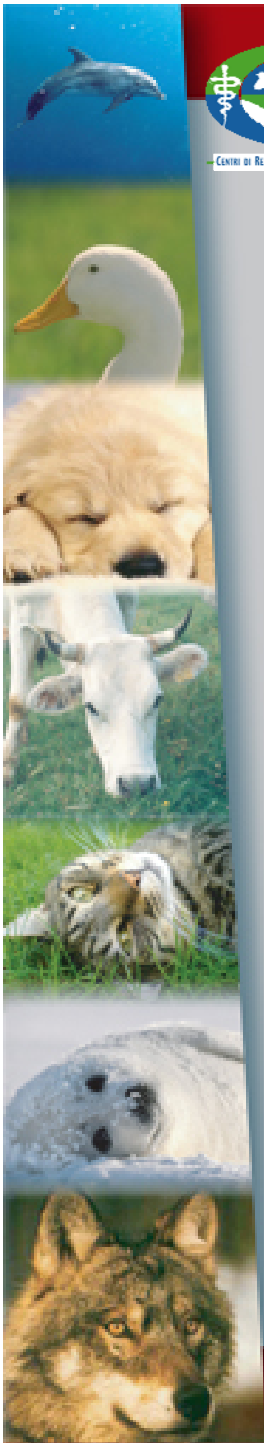
2008 surveillance on wild birds

Table 3. Birds tested and positives by RT-PCR in the area under surveillance

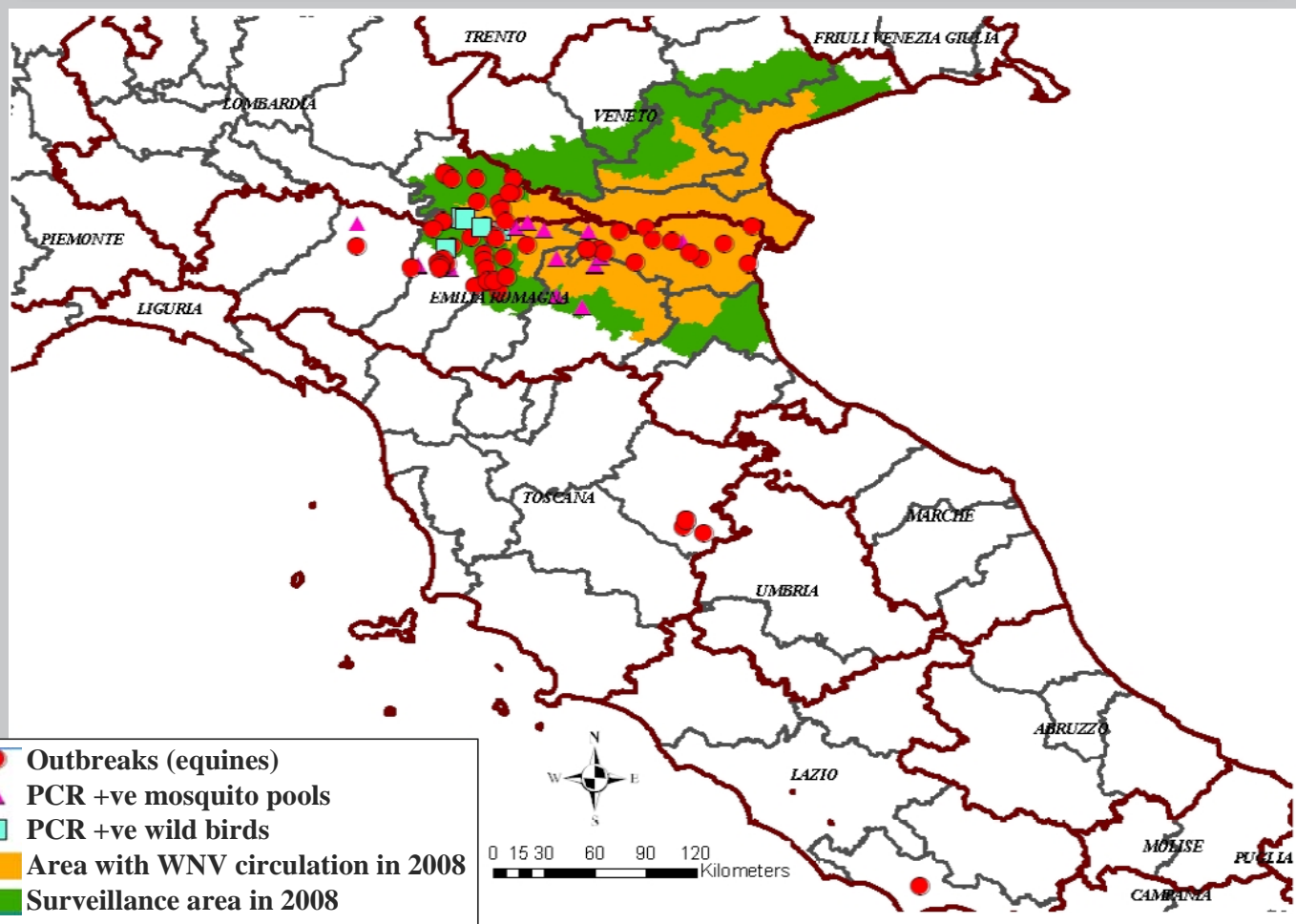
| Species | Bologna | | | Ferrara | | | Mantova | | | Modena | | | Ravenna | | | Total | | |
|--|---------|-----------|------------------|---------|-----------|----------------------|---------|-----------|-----------------|--------|-----------|--------------------|---------|-----------|-------------------|--------|-----------|---------------------|
| | Tested | Positives | % (95% c.I.) | Tested | Positives | % (95% c.I.) | Tested | Positives | % (95% c.I.) | Tested | Positives | % (95% c.I.) | Tested | Positives | % (95% c.I.) | Tested | Positives | % (95% c.I.) |
| Rock Pigeon (<i>Columba livia</i>) | | | | 93 | 12 | 12.9 (7.57–21.2) | | | | | | | | | | 93 | 12 | 12.9 (7.57–21.2) |
| Cormorant (<i>Phalacrocorax carbo</i>) | | | | 7 | 1 | 14.3 (3.19–52.7) | | | | | | | | | | 7 | 1 | 14.3 (3.19–52.7) |
| Carrian Crow (<i>Corvus corone</i>) | 39 | 0 | 0 (0.0–8.8) | 23 | 6 | 26.1 (12.62–46.7) | 14 | 0 | 0 (0.0–21.8) | 19 | 1 | 5.3 (1.23–24.9) | | | | 95 | 7 | 7.4 (3.67–14.4) |
| Yellow-legged Gull (<i>Larus michahellis</i>) | | | | 3 | 1 | 33.3 (6.76–80.6) | | | | | | | | | | 3 | 1 | 33.3 (6.76–80.6) |
| Magpie (<i>Pica pica</i>) | 50 | 1 | 2 (0.48–10.4) | 40 | 19 | 47.5 (32.88–62.6) | 1 | 0 | 0 (0.0–84.2) | 4 | 0 | 0 (0.0–52.2) | 146 | 2 | 1.4 (0.42–4.8) | 241 | 22 | 9.1 (6.12–13.4) |
| Eurasian Jay (<i>Garrulus glandarius</i>) | 4 | 0 | 0 (0.0–52.2) | 2 | 1 | 50 (9.43–90.6) | | | | 5 | 1 | 20 (4.33–64.1) | 3 | 0 | 0 (0.0–60.2) | 14 | 2 | 14.3 (4.33–40.5) |
| Other species* | 7 | 0 | 0 (0.0–36.9) | 30 | 0 | 0 (0.0–11.2) | | | | | | | | | | 37 | 0 | 0 (0.0–9.3) |
| Total | 100 | 1 | 1 (0.24–5.4) | 198 | 40 | 20.2 (15.21–26.3) | 15 | 0 | 0 (0.0–20.6) | 28 | 2 | 7.1 (2.19–22.8) | 149 | 2 | 1.3 (0.41–4.7) | 490 | 45 | 9.2 (6.94–12.1) |

*Which comprises: two little owl (*Athene noctua*), six common raven (*Corvus Corax*), four pheasant (*Phasianus Colchicus*), one little egret (*Egretta garzetta*), two long-eared owl (*Asio otus*), six goose (*Anser anser*), one grey partridge (*Perdix perdix*), eleven common starling (*Sturnus vulgaris*), three eurasian crow (*Corvus monedula*), and one turtledove (*Streptopelia turtur*).





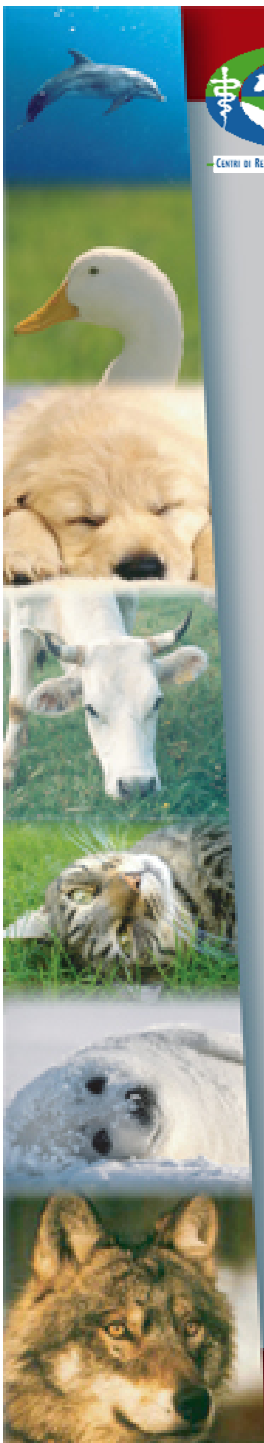
Year 2009 [to 30.10.09]





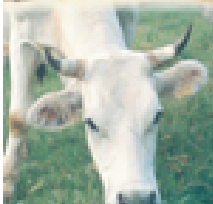
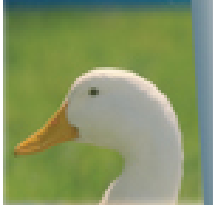
Year 2009 [to 30.10.09]

| Regions | Provinces | Total no. positive stables | No. stables where WNV clinical signs were observed | No. equine animals | | | |
|-----------------------|---------------|----------------------------|--|--------------------|-------------|------------------------|----------|
| | | | | In the outbreaks | Total cases | Showing clinical signs | Dead |
| Emilia Romagna | Ferrara | 14 | 6 | 313 | 24 | 10 | 3 |
| | Reggio Emilia | 16 | 3 | 194 | 16 | 3 | 1 |
| | Parma | 2 | 2 | 86 | 3 | 2 | 1 |
| | Modena | 12 | 8 | 268 | 16 | 9 | 1 |
| Tuscany | Arezzo | 4 | 2 | 33 | 8 | 3 | 0 |
| Lazio | Latina | 1 | 0 | 3 | 1 | 0 | 0 |
| Lombardy | Mantova | 12 | 6 | 122 | 13 | 6 | 2 |
| Total | | 61 | 27 | 1019 | 81 | 33 | 8 |





CENTRI DI RIFERENZA NAZIONALI



Thank you for attention