

# Web's potential in Arbovirus Surveillance

## West Nile on the French Mediterranean Coast

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Abstract.....

The emergence of West Nile (WN) in the new world since 1999 highlights the importance of efficient surveillance systems for zoonotic infectious diseases. In France, outbreaks of WN were noted in 1962-1965 in the Camargue region (delta of Rhone River, Mediterranean coast). Ignored for decades, this arboviral disease reappeared in the Camargue in autumn 2000. Consequently, a multidisciplinary surveillance system was set up: Because avian surveillance gives the earliest warning of WN virus, (i) dead bird collection and testing; and, (ii) serological follow-up on captive birds were performed. The aim was to: (i) detect quickly any circulation of WN virus; (ii) take suitable action on prevention and control. Following the emergence of WN in autumn 2003 in the East of the Var department, the avian surveillance was expanded to the entire French Mediterranean coast. Any data collected from field and laboratory activities are entered and analysed in an access-limited website (<http://west-nile.cirad.fr>). The general public has free access to most important information.

A recent epizootic in Camargue in 2004 gave us the opportunity to isolate the WN virus on 2 dead birds and to detect 13 seroconversions in spatio-temporal concordance with the equine cases. The website allows us to evaluate the surveillance efficiency through different parameters: sampling rhythm, quality of samples and delivery time. Moreover, the early detection of WN virus circulation in Camargue in 2004 allowed the sensibilisation of field workers of the possible risk of WN emergence, before the appearance of the first equine cases.

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### Background.....

Years				
	Confirmed cases	Number of death	Confirmed cases	Number of death
1962 -1965	500	50	13	1
2000	76	21	0	0
2001	0	0	0	0
2002	0	0	0	0
2003	7	0	7	0
2004	32	7	0	0
2005	0	0	0	0

Web site in use

### Example in 2004

#### Dead bird collection and testing

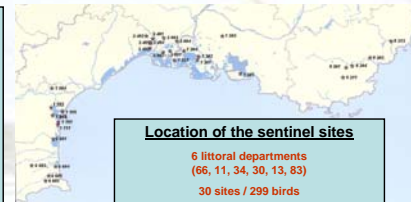
**2004 Results**  
(Network: SAGIR/ONCFS/Pasteur)  
29 carcasses of birds  
(including 25 in the reinforced zone in Mediterranean coast)  
2 positives, 1 magpie and 1 sparrow ("Grande Camargue")  
the 1st European isolate of WNV on birds

#### Serological follow-up on sentinel domestic birds

**2004 Results**  
(Network: ONCFS/DDSV/Pasteur/CIRAD)

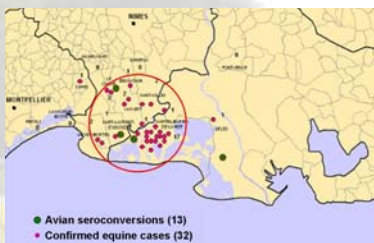
- 1 538 sera samples done
- 13 seroconversions in 4 sites all located in Camargue between July and October
- 1<sup>st</sup> seroconversion in St Maries de la Mer in July

Early detection and alert !



#### Location of the sentinel sites

- 6 littoral departments (66, 11, 34, 30, 13, 83)
- 30 sites / 299 birds
- 5 series of monthly sampling (from June to October)

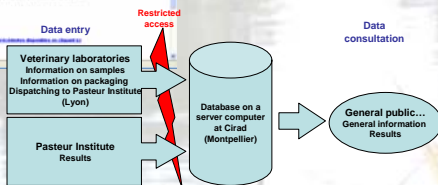


#### Epizootic in Camargue 2004

- 32 equine cases including 7 deaths
- Epicentre: "Grande Camargue" (St Maries de la Mer Aug.-Oct. 2004)
- Spatial and temporal correlation between avian seroconversions and equine cases

Avian surveillance protocols and results

### Web site <http://west-nile.cirad.fr>



With a number reaching up to 1,200 visits/month, this Web site is nowadays a tool recognized by the public, scientists, veterinarians and stakeholders implied in the avian surveillance of WN in France.

This electronic tool, established in 2001, expressed its full potential in 2004 by making it possible to give accurate information on the surveillance network – performance and efficacy.

### Some performance indicators

Examples	2004	2005
Percentage of samples acceptable for lab processing on arrival at the Pasteur Institute	99 %	90 %
Mean number of days from sampling collection to results dispatch	10 days	14 days

Directly extracted from the web site, there is a worst performance in the avian surveillance network in 2005 compared to 2004.

Several reasons could explain such less efficient performance : financial, training, logistic...

Web's use give us the opportunity to react quickly by taking correction measures.

### Conclusion

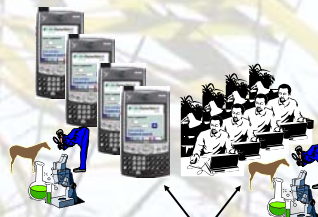
Use of internet in Epidemio-surveillance provides a low-priced way to:

- exchange data and information in real time among people involved (scientists, veterinarians and stakeholders);
- contribute to the information obtained by other WN networks in other countries, in particular, in the Mediterranean Basin;
- share information with the general public.

from the web site

### « To be nearest to the real time ».....

At present, new systems involving Personal Data Assistants (PDA) are being studied and tested in an effort to improve information flow on real time.



Thanks to the use of a Personal Data Assistant connected via phone or Wifi, or via a PC, all the data are uploaded on a web site.

Several general or clinical data and statistics are immediately available.

When a critical information is uploaded on the web site (outbreak for example), a specific e-mail or sms is sent to people involved in the Epidemio-surveillance network

Perspectives



Centre de coopération internationale en recherche agronomique pour le développement