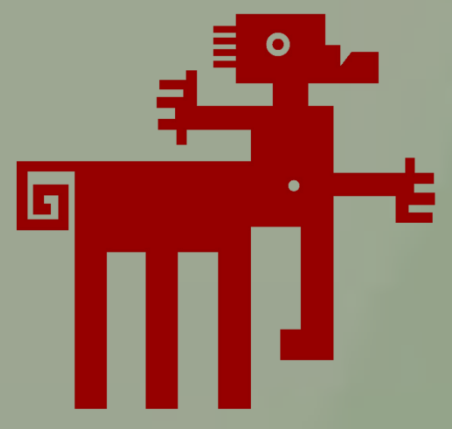


WEST NILE VIRUS ACTIVE SURVEILLANCE PROGRAM: HORSES AS SENTINELS



Facultat de Veterinària - UAB

Anna Espàrrach Murgó

UAB
Universitat Autònoma de Barcelona

June 2019

INTRODUCTION

West Nile fever is a world-wide vector-borne disease caused by West Nile virus, a flavivirus belonging to the Japanese Encephalitis virus serocomplex (JEV).

Its enzootic transmission cycle is maintained between ornitophilic mosquitoes and birds as an amplification hosts, whereas human and horses are considered dead-end host because its incapability of transmitting the virus.

In 2018 the virus has shown an increase in its incidence in the EU countries and the first equine outbreak occurred in Catalonia after it was detected for the first time in 2017.

OBJECTIVES → Current study aimed to collaborate with the WNV Surveillance and Emergency programs established in Catalonia by the serological evaluation of horses used as sentinel hosts in order to increase knowledge of the epidemiological situation of the area.

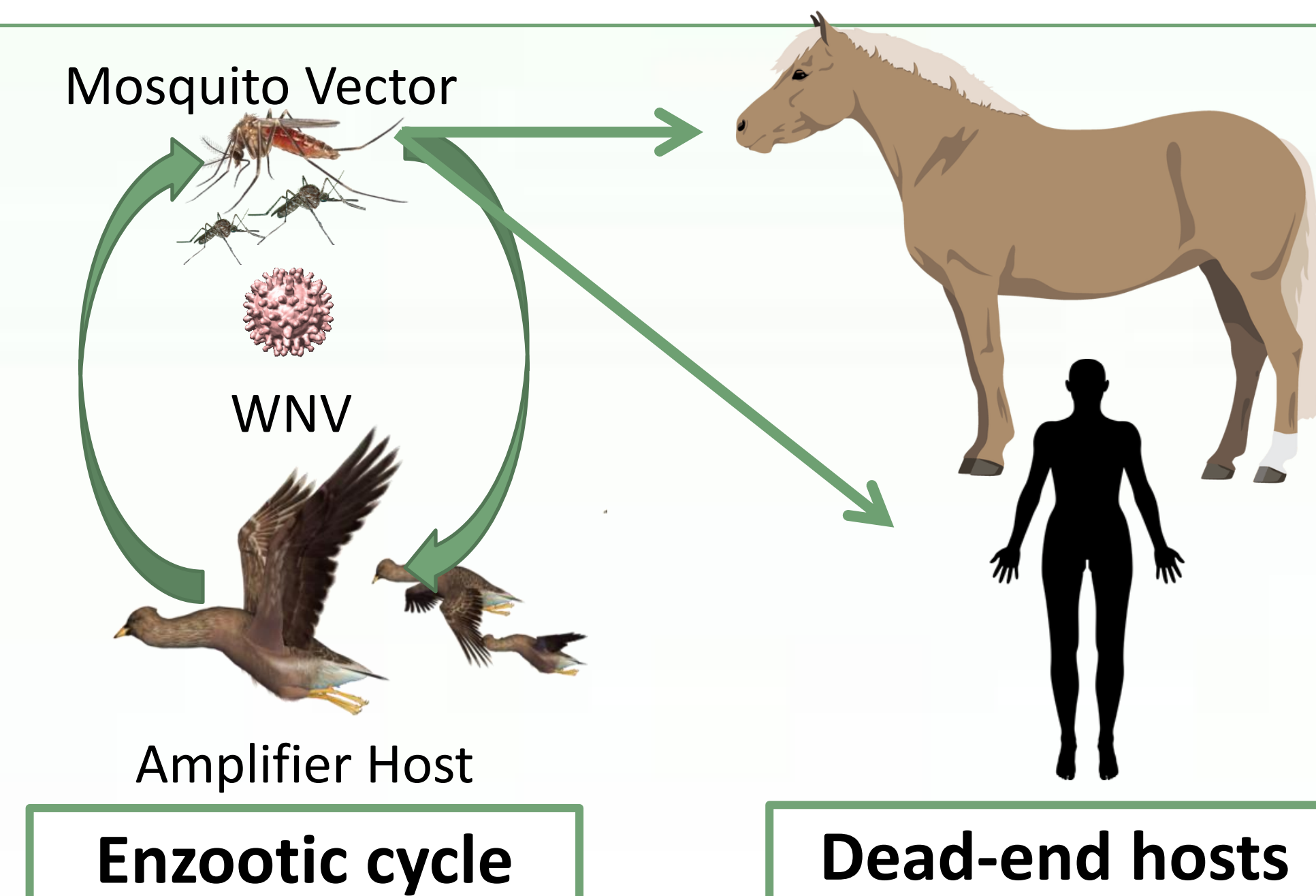


Figure 1: WNV transmission cycle.

MATERIAL AND METHODS

- **Surveillance program:** samples are obtained **randomly** from horses that have been hospitalized at the Clinical Hospital of the UAB (HCV).
- **Emergency programs:** realization of **two cross-sectional studies** in El Segrià and El Garraf. Serum from **59 horses** obtained in each one (5% of seroprevalence with a 95% of confidence).

- **Analysis of samples** by a **competitive ELISA** against **flavivirus**.
- **Analysis of positive samples** for its confirmation by **serum neutralisation test** against **WNV** and also a **capture ELISA** to detect **IgM-specific**.

RESULTS and DISCUSSION

The results are shown in the following table:

Table 1: Positive results of all samples tested with cELISA, SN and IgM-specific during 2018.

Origen of the samples:	Horses tested	cELISA positive	SN positive	IgM detection
HCV	42	1	Negative	Negative
Segrià	35	14	4	Negative
Garraf	114	20	14	5

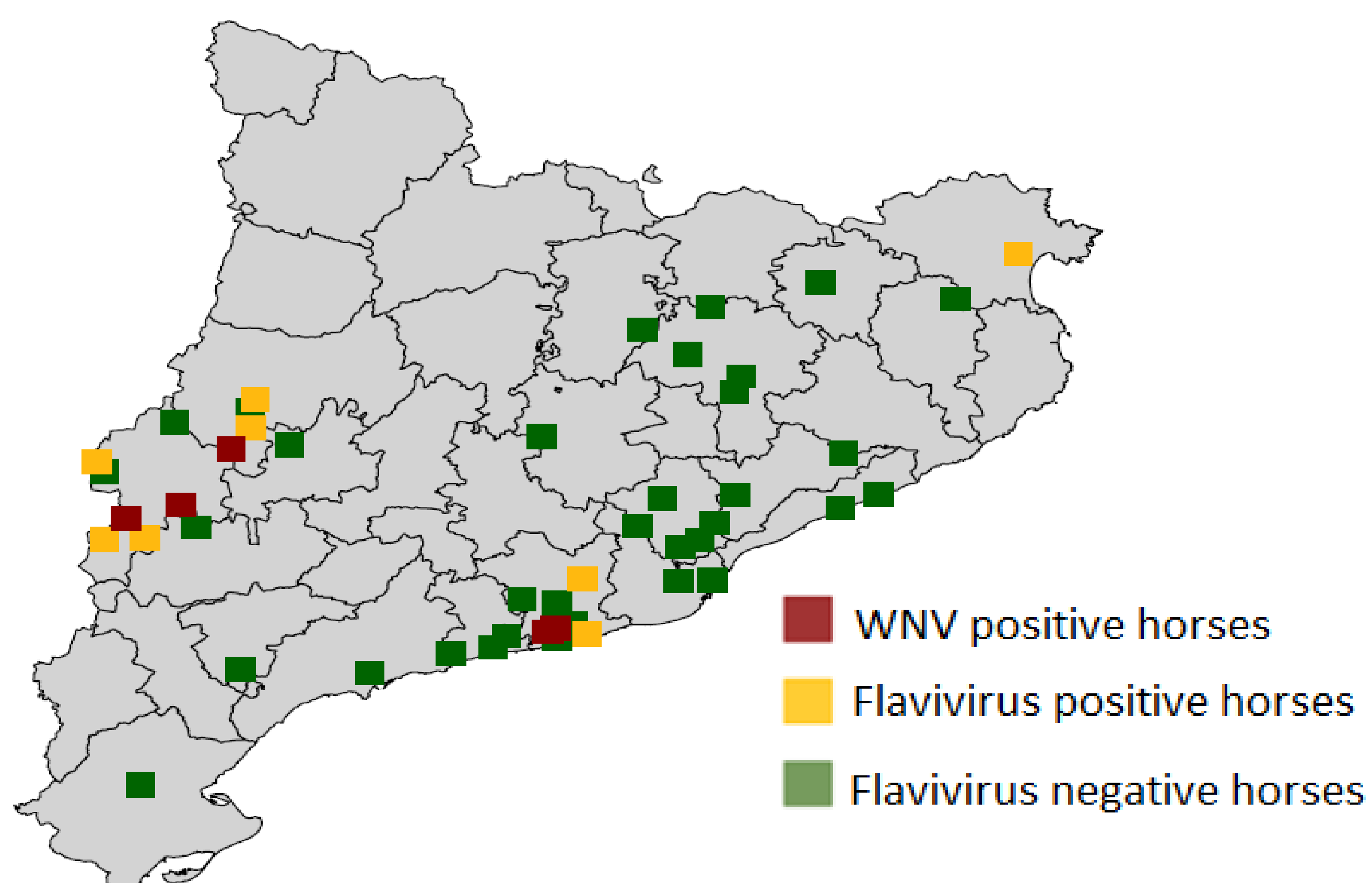


Figure 2: Distribution map according to the results obtained with the Surveillance and Emergency programs.

Seroconversion evolution in Catalonia (2016-2018)

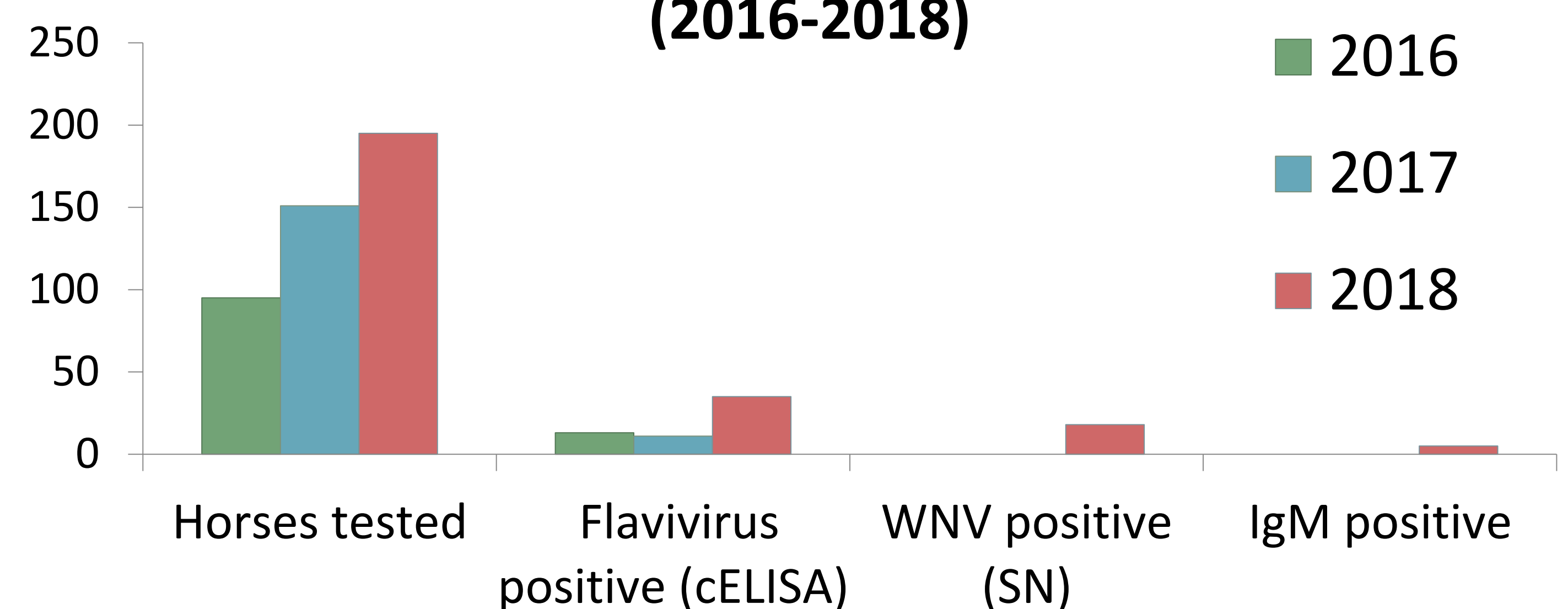


Figure 3: Graph of the seroprevalence evolution in Catalonia studied during 2016-2018.

- During 2018 a higher number of seroconversions have been detected.
- WNV and other flavivirus belonging to the JEV serocomplex have been circulating in Catalonia.
- WNV circulation seems to be restricted within El Segrià and El Garraf. Thus, it is not located in wetlands but in other areas close to urban nucleus.
- IgM conversions have allowed the detection of asymptomatic infections in horses.

CONCLUSIONS

Both **WNV** and other **flavivirus** belonging to the JEV serocomplex has been circulating in 2018 in the equine population of Catalonia, nearby urban areas. This is why the maintenance of active surveillance as well as the enhancement of passive surveillance should be carried out in order to know deeply the epidemiological situation of the disease given its likely **reappearance**.