

# EVPC Paris 2023

Last 20 years in Veterinary Parasitology: trends and future

## Abstract book



## P9. Seroprevalence of West Nile Virus (WNV) in birds in European countries: a systematic review

Filipa Loureiro<sup>1,2</sup>, Luís Cardoso<sup>2,3\*</sup>, Ana Matos<sup>4,5,6</sup>, Manuela Matos<sup>7</sup>, Ana Cláudia Coelho<sup>2,3</sup>

<sup>1</sup> CRAS-HVUTAD – Wildlife Recovery Centre, Veterinary Teaching Hospital, University of Trás-os-Montes e Alto Douro (UTAD), Vila Real, Portugal

<sup>2</sup> CECAV – Animal and Veterinary Research Centre, Associate Laboratory for Animal and Veterinary Sciences (AL4Animals), Vila Real, Portugal

<sup>3</sup> Department of Veterinary Sciences, UTAD, Vila Real, Portugal

<sup>4</sup> Polytechnic Institute of Castelo Branco (IPCB), Castelo Branco, Portugal

<sup>5</sup> Research Centre for Natural Resources, Environment and Society (CERNAS), IPCB, Castelo Branco, Portugal

<sup>6</sup> Researcher at Q-RURAL – Quality of Life in the Rural World, IPCB, Castelo Branco, Portugal

<sup>7</sup> Centre for the Research and Technology of Agro-Environmental and Biological Sciences (CITAB), UTAD, Vila Real, Portugal

\* [lcardoso@utad.pt](mailto:lcardoso@utad.pt)

### Background and aims

West Nile (WN) fever is a mosquito-borne viral disease that can cause asymptomatic infection, mild fever, meningitis, encephalitis and death. WN is an arthropod-borne virus that is preserved in the environment through a vertebrate host-mosquito life cycle, with the genus *Culex* recognized as the primary vectors. The occurrence of disease in humans and animals (mostly horses) along with bird and mosquito surveillance for WNV activity shows that the reach of the virus has expanded to the whole American continent, as well as Europe. In the last decades we have been attending an increasing epidemic activity of the WNV in several European countries, including the Mediterranean basin. The aim of this study was to perform a systematic review to analyze seroprevalence studies of West Nile Virus (WNV) in birds in European countries between 2010 and 2023.

### Methods

Three electronic databases – PubMed, ScienceDirect and Scopus – were searched for relevant publications using predetermined keywords.

### Results

A total of 4872 papers were initially found, and 39 results were finally included in the article, after removing duplicates and applying the eligibility criteria. Most of the studies (n=25) used enzyme-linked immunosorbent assay (ELISA) as the first diagnostic test, and in a large proportion of these (n=19), some or all the positive samples were confirmed by virus neutralization test (VNT). In 20 of them, other flaviviruses were simultaneously investigated. In total, samples from 23 different avian orders were included. The study showing the highest seroprevalence was conducted in Italy.

### Conclusions

The emergence of viruses in distinct territories, which had previously been restricted to Africa, represents a public health threat. Further monitoring of WNV in Europe is advised, considering the threat that this vector-borne disease can pose to humans and animals.