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Seroprevalence of West Nile virus in Cinereous vultures (*Aegypius monachus*) and Griffon vultures (*Gyps fulvus*) in the centre region of Portugal

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Abstract

West Nile virus (WNV) is an emergent zoonotic pathogen spread worldwide. This flavivirus is endemically maintained in a life cycle with birds acting as reservoirs, *Culex* mosquitoes as the main vectors, and humans and horses as accidental dead-end hosts. The potential impact of WNV infection on wildlife populations can be severe, especially in threatened or endangered species. This work might be useful as a starting point for a surveillance program to better assess the real distribution of the WNV in Portuguese vultures. Early virus detection is important for both bird conservation and public health.

An ELISA commercial kit was used to detect WNV-total antibodies in blood serum collected from vultures admitted at a wildlife rehabilitation centre in the Centre region of Portugal. A total of 167 individuals of the species cinereous vulture (*Aegypius monachus*, n=36; 21.6%; 95% CI: 15.6-28.6%) and griffon vulture (*Gyps fulvus*, n=131; 78.4%; 95% CI: 71.4-84.4%) were tested, from which 40 samples were positive (23.95%; 95% CI: 17.70%-31.16%).

Overall, positive dynamics have been observed in vulture populations in Western Europe but continued, and additional monitoring is crucial. Sudden changes in trends following the emergence of new threats, such as outbreaks of infectious diseases, should be addressed.

Climate change seems to have an influence on the epidemiology of WNV, contributing to its current expansion into new areas. This may be considered a preliminary study and a contribution to the study of the seroprevalence of WNV in wild birds in Portugal, important to improve WNV surveillance and control.

Key words: *Aegypius monachus*, *Cinereous vulture*, *Griffon vulture*, *Gyps fulvus*, *West Nile virus*, *zoonosis*

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