

Updated Outbreak Assessment

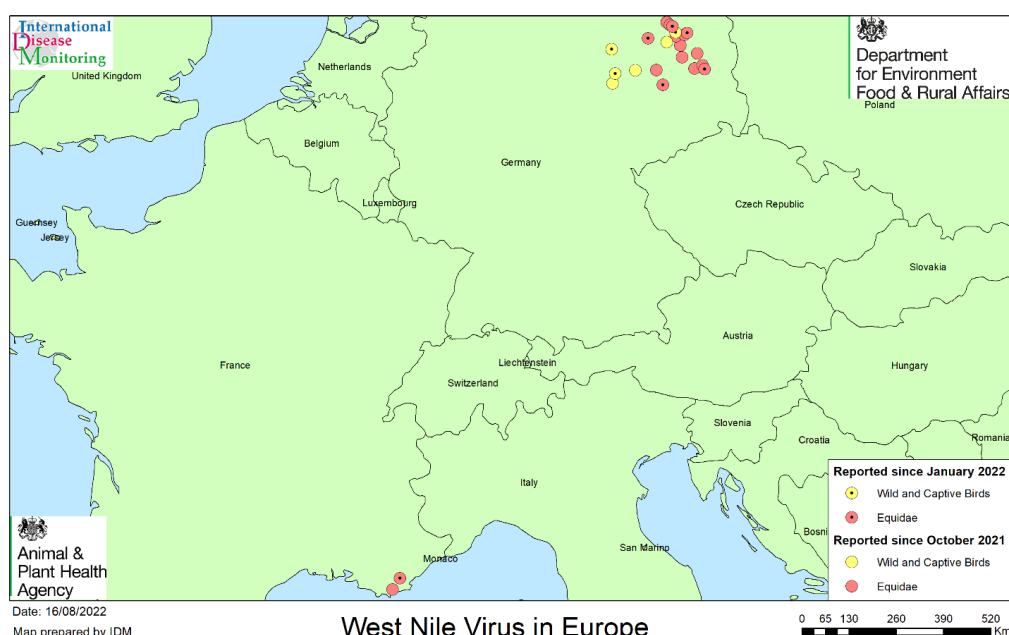
West Nile virus in Germany and southern Europe

15 August 2022

Ref: VITT/1200 WNV in Germany

Disease Report

West Nile virus (WNV) first emerged in north-east Germany in August 2018 with several cases in birds and two outbreaks in horses in September and October 2018 (see previous outbreak assessments at <https://www.gov.uk/government/publications/west-nile-virus-in-owls-in-germany>). The virus appears to be persisting in this region through successful over-wintering in hibernating mosquitoes (Ziegler et al. 2020), as there were more avian cases and equine outbreaks in the late summers of 2019, 2020 and 2021. The first avian case of WNV this year in northern Germany was detected on 5 July 2022 in a captive snowy owl (*Bubo scandiacus*) in a zoo in Magdeburg (see above map), representing a slight westward shift in detections of WNV in Germany compared with the previously reported findings near Berlin in 2021 (<https://www.gov.uk/government/publications/west-nile-virus-in-owls-in-germany>). A further case occurred in a captive Humboldt penguin (*Spheniscus humboldti*) at a zoo in Bernburg, approximately 50km south of Magdeburg on 13 July 2022. Near Berlin, WNV was detected in the only horse present at a backyard premises on 29 July 2022. As in previous years since 2018, WNV appears to have over-wintered also in this case, presumably in hibernating mosquitoes (Ziegler et al. 2020) in this region of Germany.



West Nile Virus in Europe
October 2021 - August 2022
(WOAH data only)

Situation Assessment

WNV is a zoonosis and one of the vector-borne viral diseases causing equine encephalitis. The virus circulates between wild birds transmitted by ornithophilic mosquitoes (the most common is *Culex pipiens*) in Southern and Eastern Europe, North America, East and West Africa. Horses and humans are rare accidental spill-over hosts and can be infected through the bite of a bridging species of mosquito, such as *Culex modestus* and *Culex pipiens molestus*; or very rarely through surgical interventions, such as blood transfusion, organ transplant, or injecting blood products.

As of 10 August 2022, there have been a total of seven WNV outbreaks among equids and 39 events among birds reported across Europe during the 2022 transmission season (ECDC 2022). The seven outbreaks among equids were all in Italy, along with 38 of the avian cases, the remaining avian case being in Germany (ECDC 2022).

Subsequently, on 11 August 2022 the first outbreak of WNV this season in France was reported by the WOA on a farm with 41 horses on the premises, though only one horse was affected. The farm is located in the Var department of the Provence-Alpes-Côte d'Azur region in southern France.

It is possible that WNV enters the UK through WNV-infected wild birds from Europe from time-to-time. In Autumn, large numbers of thrushes (including Fieldfare (*Turdus pilaris*) and Redwing (*Turdus iliacus*)) migrate from Scandinavia to the UK, together with other passerines from north-eastern Europe. Direct bird-to-bird transmission of WNV does not occur, and so the probability of a WNV-infected wild bird is reliant on birds stopping off in northern Germany and being bitten by mosquitoes; but this would seem unlikely. British mosquitoes are capable of transmitting WNV from wild birds, and established populations of *Culex modestus* are documented in southern England (Phipps *et al.*, 2018; Cull, *et al.*, 2016), but mosquito activity declines from October. Hence, the number of WNV transmission events within the UK may be restricted because there needs to be synchrony between WNV entering the UK in birds from northern Europe and a high UK mosquito abundance, for onward transmission to UK birds and equines. For this reason, the risk of WNV incursion into the UK differs for each of the seasons (see our previous outbreak assessments for details for each season, <https://www.gov.uk/government/publications/west-nile-virus-in-owls-in-germany>).

The ongoing droughts and recent heatwaves in the UK and northern Europe in summer 2022 may affect the transmission dynamics of WNV in wild birds in ways that are not fully understood at present. In particular, bird movements and behaviour may change with perhaps more livestock, birds and mosquitoes congregating at the small remaining freshwater bodies over the late summer and autumn. Droughts may cause people to use pots to collect water providing breeding sites for mosquitoes in urban areas. Enzootic transmission of WNV was reported in the Netherlands for the first time in August 2020 (Sikkema *et al.* 2020) with detection of the virus RNA in a Common whitethroat (*Curruca*

communis) and in two of 44 mosquito pools tested. Sequence analysis from the mosquito pools suggested the virus originated from Germany, Austria or the Czech Republic, consistent with a general north-westward expansion in range of the virus. The detection in the whitethroat and the mosquito pools followed a heatwave in the Netherlands (Sikkema et al. 2020), and the WNV occurrence in Germany in 2018 was linked to a hot and rainless season in April/May 2018 (Ziegler et al. 2019). The recent expansion in range of WNV into north-western Europe may increase the likelihood of more WNV-positive birds entering the UK during autumn as passage migrants. While passerines may not arrive until October, a further consideration is the arrival of wading birds such as Common snipe (*Gallinago gallinago*) and ruff (*Philomachus pugnax*) from breeding grounds in the Baltic States and Scandinavia. These bird species may arrive earlier (August/September) when mosquito numbers are still relatively high in the UK. Compared to thrushes, however, these wading birds represent relatively small numbers and are located at coastal sites.

Taking into account both the lack of synchrony, with migrant birds from Germany arriving in the UK in October when the UK mosquito abundance is falling, together with the large number of pathway steps required for infecting a horse in the UK (namely infection of migrant passerine in Germany, migration of passerine to UK, infection of UK mosquito), and the relatively small number of WNV cases in birds in Germany, it is considered that the risk of autochthonous infection of an equine in the UK through entry of WNV in wild birds in the summer is **negligible**.

Very few wild birds migrate from north-east or central Europe to the UK in the summer months when both mosquito numbers peak and the WNV vector transmission season has started (ECDC 2019). This risk could increase in Autumn, particularly if hot dry weather leads to higher mosquito populations when passerines begin to arrive in the UK from northern Europe, but the risk would be expected to reduce again as the mosquito population declines.

Conclusion

The current risk of autochthonous WNV transmission to horses in the UK as a result of the recurrence of WNV in birds and horses in north-east Germany is currently considered to be **negligible**. However, there is continued uncertainty around the ongoing WNV situation in Germany, and the sensitivity of wild bird surveillance across Europe as a whole, particularly in the light of the recent heatwaves and ongoing drought situation. While passerines in Europe have been detected infected with WNV other species such as waders which arrive earlier in the autumn need more consideration as potential routes of entry to the UK.

The majority of infected horses will not show any clinical signs, but some horses may develop a fever; and rarely central nervous signs, such as tremors, staggering and ultimately, death. All causes of equine viral encephalo-myelitis are notifiable in horses and suspicion of disease must be reported to APHA.

The movement of WNV-infected people or horses would not be a risk pathway for establishing disease in the UK in terms of mosquito transmission, although it should be emphasised that disease in humans can result from exposure to equine tissues at necropsy (Venter et al. 2010). Similarly, it is noteworthy that the veterinarian who performed the necropsy of a captive, WNV-infected great grey owl (*Strix nebulosa*) in Germany in 2018, developed flu-like symptoms three days after, and specific WNV-IgM antibodies one month after performing the necropsy (see Ziegler et al. 2019).

We would like to remind veterinarians and operators of equine establishments of the requirement to report suspect disease to APHA and that there is a “testing to exclude” programme to rule out infection in horses showing clinical signs where there is a low suspicion of WNV as a differential diagnosis. Veterinarians should discuss this option with APHA. (<https://www.gov.uk/government/organisations/animal-and-plant-health-agency/about/access-and-opening>).

We will continue to monitor the situation.

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All disease reports are available from the OIE WAHIS database.

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