Department for Environment, Food and Rural Affairs
Animal and Plant Health Agency
Advice Services - International Disease Monitoring

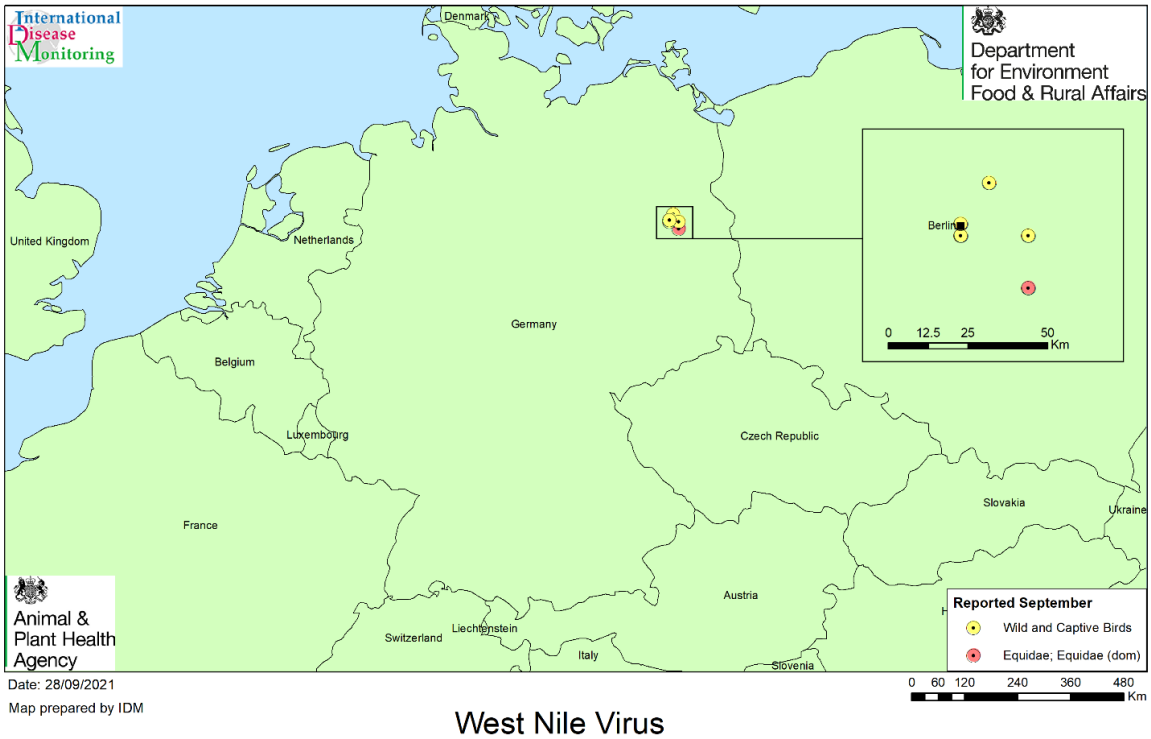
## Updated Outbreak Assessment

# West Nile virus in Germany

30 September 2021 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 the September and October of 2018 (see previous outbreak assessments at https://www.gov.uk/government/publications/west-nile-virus-in-owls-in-germany). The virus appears to be successfully over-wintering in this region through WNV persistence in hibernating mosquitoes through the winter season (Ziegler et al. 2020) with more avian cases and equine outbreaks in late summer 2019 and 2020. The first avian case this year of WNV in north-east Germany was detected in mid-April, although not reported by OIE until mid-September; together with four more avian cases starting in July/August, and a single outbreak in horses in mid-August. Four of the avian cases reported this month were captive birds in zoos; the other one being wild birds, including a corvid and a hawk.




West Nile Virus
April - September 2021

The first avian case of WNV this year was detected on 16 April 2021 in captive parrots in a zoo in Berlin (see above map), close to the locations of the avian cases and equine outbreaks of WNV in the three previous years (see previous outbreak assessments at https://www.gov.uk/government/publications/west-nile-virus-in-owls-in-germany). A further case occurred in an unidentified species of captive hawk at a zoo on 19 July 2021, with two more cases in captive birds in zoos (including an unidentified owl and flamingo species) in late August. Nearby, WNV was detected in one horse at a farm with 60 horses on 16 August 2021. As in previous years since 2018, WNV appears to have over-wintered, presumably in hibernating mosquitoes (Ziegler et al. 2020) in this region of Germany. One wild bird case involving an unidentified hawk and a crow species, was identified on 28 August 2021.

## 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 mosquitos (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 Cx pipiens molestus;* or very rarely through surgical interventions, such as blood transfusion, organ transplant, or injecting blood products.

British mosquitos are capable of transmitting WNV, and established populations of *Culex modestus* are documented in southern England (Phipps *et al*, 2018; Cull, *et al.,* 2016). Mosquito activity declines from October, and hence WNV transmission is unlikely occur in autumn and winter. It is likely that WNV enters the UK through WNV-infected wild birds from Europe from time to time. 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. 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).

Large numbers of thrushes (including Fieldfare (*Turdus pilaris*) and Redwing (*Turdus iliacus*)) migrate from Scandinavia to the UK in the autumn, together with other passerines from north-eastern Europe. Direct bird-to-bird transmission of WNV does not occur, and thus the probability of a WNV-infected wild bird in Germany directly infecting a migrant thrush on its way to the UK is negligible. Vector-borne transmission could occur, depending on mosquito activity in Germany at this time of year, and whether the migrating thrushes stop-off in northern Germany to be bitten by mosquitoes; but this would seem unlikely. 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 autumn is **very low**. 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).

## Conclusion

The current risk (autumn 2021) 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 considered to be **very low**. However, there is continued uncertainty around the current WNV situation in Germany, and the sensitivity of wild bird surveillance across Europe as a whole. For example, 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 (Zieglet al. 2019). This apparent expansion in range of the virus into north-western Europe may increase the likelihood of more WNV-positive birds entering the UK during autumn as passage migrants.

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. WNV is a notifiable disease 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 3 days after and revealed one month after the necropsy, specific WNV-IgM antibodies (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 ).

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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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