

## Updated Outbreak Assessment

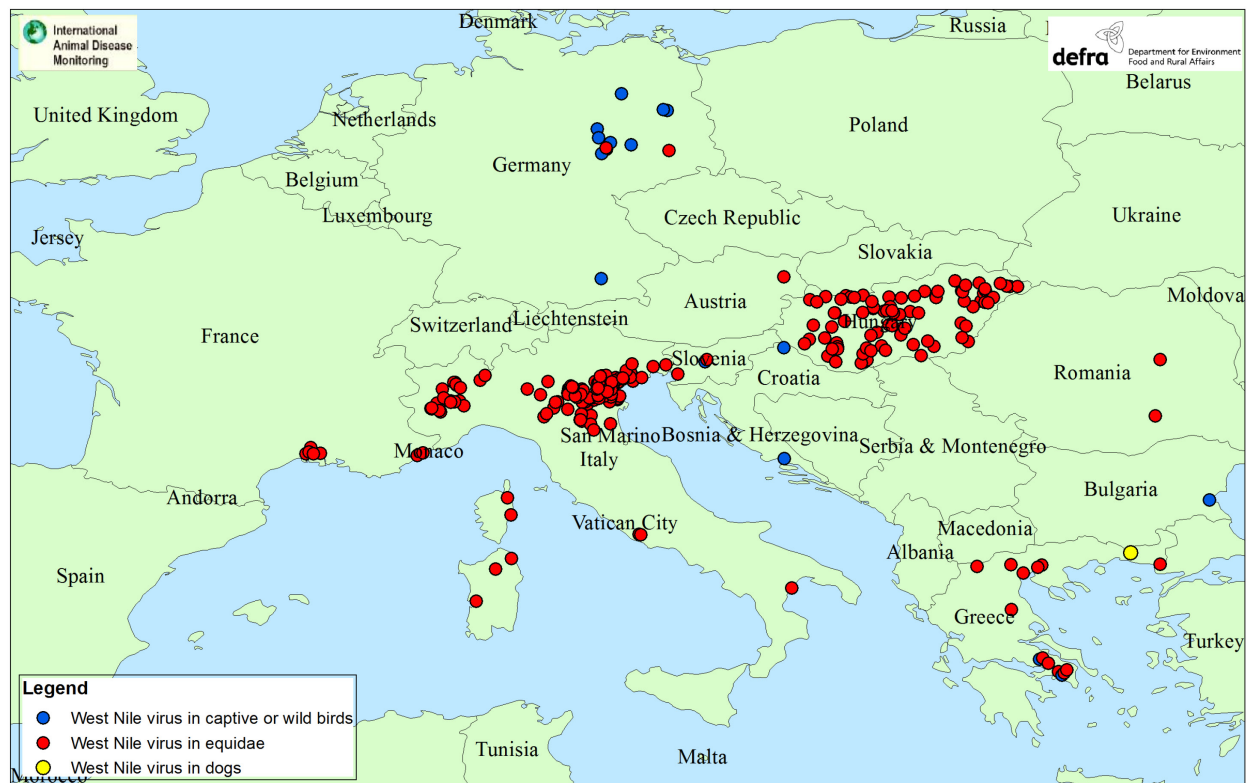
# West Nile virus in Germany and Southern Europe

16 October 2018

Ref: VITT/1200 WNV in Germany and Southern Europe

### Disease report

Since the previous report of West Nile virus (WNV) in two great grey owls (*Strix nebulosa*) at a zoological collection in Sachsen-Anhalt in Germany, representing the first time WNV has been identified in Germany (FLI 2018), several more avian cases have been reported in Germany, not only in captive birds but also in wild birds including both raptors and unusually for Europe, passerines. These are summarised in Table 1. Indeed, the recent report of a dead wild thrush in the Mecklenburg-Vorpommern region of northern Germany (26 September 2018) now represents the most northerly report in Europe of this virus (to our knowledge). In addition, the first case of WNV has been reported in equines in Germany with an outbreak in a farm of 12 horses in Brandenburg on the 21 September. No autochthonous human cases in Germany have been reported to date.



Date prepared 16/10/2018

West Nile Virus reports in horses and captive or wild birds  
June - October, 2018

Absolute Scale 1:17,500,000

0 95 190 380 570 760 Kilometers

## Situation assessment

West Nile virus is 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 events, 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.

Raptors are particularly susceptible to WNV in Europe, while in the epizootic in the USA which started in 1999, passerines have also been severely affected. Of interest, it has recently been confirmed that a veterinarian infected with WNV worked at a birds' clinic and had previously performed necropsy of a just-deceased great grey owl found in a wildlife park near Poing, Ebersberg, Bavaria. This would suggest the vet may have been infected from direct contact with body fluids from the owl, although mosquito transmission has not been ruled out. It was not known if the great grey owls in Sachsen-Anhalt were recent additions to the zoological collection from North America, where this species is common. These new cases of WNV in both wild birds and captive raptors suggests autochthontous (i.e. spread within the same place) transmission of WNV in birds within Germany.

The avian cases of WNV in Germany are summarised in Table 1. The affected avian species typically represent large raptors (Northern goshawk (*Accipiter gentilis*), snowy owl (*Bubo scandiacus*) and great grey owl) which breed at relatively northern latitudes. Similar species associations have been observed previously in captive owls infected with WNV in Canada (Gancz et al. 2004) and it was proposed that large body size and the susceptibility to louse fly due to higher feather density contributed to their susceptibility to WNV.

Table 1: Summary of avian cases of WNV in Germany since previous report

Species	Date
Great grey owl (1) in a wildlife park	31 August
Northern goshawk (1) in a rescue centre	4 September
Northern goshawk (1) in a rescue centre	4 September
Northern goshawk (1) in a wildlife park	10 September
Great grey owl (1) in a wild life park	12 September
Snowy owl (2) in a zoo	20 September

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Wild thrush (1)	20 September
Wild thrush (1)	26 September
Wild owl (1)	27 September
Northern goshawk (1) in a falconry	15 October

The outbreak of WNV in equines in southern Europe is ongoing and the number of cases this year is much greater than in previous years. For example Italy reported 46 and 55 cases of WNV in 2016 and 2017 respectively, but has so far reported 111 in 2018. In addition many more human cases have been reported this summer (ECDC 2018) and WNV has caused the death of a dog in Greece. Cases of WNV have been reported in wild birds in southern Europe with a dead rook (*Corvus frugilegus*) in Bulgaria in early October and a Common buzzard (*Buteo buteo*) in southern France.

This year saw a very warm summer associated with an earlier start to the West Nile Virus season in continental Europe leading to more number of cases of WNV in humans (Haussig, *et al.* 2018) but the geographic range of cases appears to have remained stable over the last few years (see disease maps produced by the European Centre for Disease Prevention and Control, ECDC, 2018). The recent cases in birds in Germany together with the first occurrence of WNV in horses in Germany suggest a real expansion northwards in the range of autochthonous disease distribution rather than a series of “imported” non-autochthonous cases. Indeed, the most northerly case in the Mecklenburg-Vorpommern region was in a wild thrush and the Northern goshawks were also wild birds, albeit taken into care. It is not known whether the increased incidence of WNV this year is due to a more virulent strain of virus (for example giving higher titres in birds and hence increased transmission to mosquitoes, compared to previous European strains) or whether the elevated temperatures this year have contributed to enhanced mosquito competence and biting activity. The virus lineage is not known at present and further genetic testing is being undertaken; in Europe two lineages circulate with both causing disease: Lineage 1 has been detected in Spain, Portugal and Southern France. Lineage 2 has been detected in Central and Eastern Europe, particularly Greece. Both lineages have been found in Italy.

The presence of WNV in wild passerine birds in northern Germany raises the possibility of entry of WNV into the UK through the autumn migration: the infected wild thrush in Mecklenburg-Vorpommern is virtually on the Baltic which is a major migration route to the UK. 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 thrush in Germany directly infecting a migrant

thrush on its way to the UK is negligible. Vector-borne transmission could occur depending on mosquito activity and whether the migrating thrushes stop-off in northern Germany. However, this would seem unlikely. Although WNV is endemic in wild birds in southern Spain and France, no cases have been reported in the UK to date, despite large numbers of birds migrating up to the UK through France and Spain every spring.

British mosquitos would be capable of transmitting WNV and recent surveillance by PHE has found established populations of *Culex modestus* in southern England (Phipps *et al.*, 2018; Cull, *et al.*, 2016). No cases of autochthonous WNV infection in either humans or horses have ever been reported in the UK. Mosquito activity declines from October and WNV transmission would not occur. The forecasted warm weather in the UK this October may promote indigenous UK mosquito activity and prolong the vector season. However, taking into account the large number of pathway steps (infection of mosquito in Germany, infection of migrant passerine, migration of passerine to UK, infection of UK mosquito) together with the relatively small number of wild bird cases in Germany, it is considered overall that the risk of autochthonous infection of an equine in the UK through entry of WNV in wild birds is very low.

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 death. WNV is a notifiable disease in horses and suspicion of disease must be reported to APHA.

## Conclusion

The risk of incursion of WNV to the UK as a result of the increase of WNV cases in wild birds in Germany at present remains **very low**, but there is a level of uncertainty around the situation in Germany and the lack of wild bird surveillance data across Europe. Virus could arrive through the movement of infected wild birds and subsequent transmission to local mosquito populations or assisted movement of infected adult stage mosquitos (in containers, vehicles and aircraft). The movement of 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).

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 WNV is a differential diagnosis. Veterinarians should discuss this option with their local APHA office. (<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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