Disease-spreading mosquito found in UK after 60 years

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News

Disease-spreading mosquito found in UK after 60 years

9 February 2012, by Adele Rackley

A species of mosquito suspected of transmitting West Nile virus to humans in Europe has been discovered in the marshes of north Kent and south Essex.

Culex modestus.

West Nile virus (WNV) lives primarily in birds. Humans occasionally catch it from the

bite of a mosquito that has previously fed on an infected bird or animal. Though it can cause severe disease, most infections are mild or produce no symptoms.

The mosquito, known only by its Latin name *Culex modestus*, can transmit WNV because it regularly bites both birds and mammals.

WNV has never been found in the UK and there is no known current risk to humans.

Cx. modestus has not been seen in the UK since 1945, when only a handful were recorded. The mosquitoes were found by Centre for Ecology & Hydrology (CEH) and University of Oxford post-graduate student, Nick Golding.

'It is unclear how long {Culex modestus} has been breeding in the UK – the new specimens were found during field studies in 2010 and 2011 – but it seems likely that the species has arrived fairly recently,' says Golding.

Golding found the larvae of *Cx. modestus* during his research into mosquito community ecology – how different mosquito species interact with other aquatic creatures. CEH colleague Stefanie Schäfer identified the species and then confirmed it by matching its DNA with known examples from southern France.

'I thought it looked a bit different,' remembers Golding. 'I was lucky to be looking for larvae because the adults of this species are much trickier to identify.'

> 'In the UK, the mosquito's biting habits and ability to transmit West Nile virus have yet to be investigated.'

Once notified of the potential human health risk, the Health Protection Agency (HPA) confirmed the presence of *Cx. modestus* in their own adult samples, trapped close to Golding's study site.

Details of a collaborative study of the mosquito between CEH and the HPA are published in Parasites and Vectors.

'In the UK, the mosquito's biting habits and ability to transmit West Nile virus have yet to be investigated, ' explains Dr Miles Nunn, Golding's supervisor at CEH. '*Culex modestus* is difficult to distinguish from related mosquitoes that are less likely to transmit viruses to humans. Its discovery highlights the importance of expert long-term biological recording of UK wildlife by the scientific community.'

WNV routinely infects wildlife, and occasionally man, in parts of Africa, the Middle East and south-west Asia. More recently outbreaks have been reported in cooler regions, including France and Portugal, and it has been present in the US since 1999.

Map of Thames estuary showing satellite predictions of habitat suitable for Cx. modestus, red dots are most similar and blue represents possible islands of habitat, darker blue being more suitable.

No-one knows for certain how these mosquitoes got to the UK. They can't fly far so probably didn't travel from mainland Europe under their own steam. It's more likely they were accidentally transported by ship, especially given the number of international shipping terminals in the area where *Cx. modestus* now seems to be established.

Golding, Nunn and colleagues at CEH, HPA and Oxford University are continuing to work together to establish just how widespread these mosquitoes are and whether there is any risk to people. They have been using satellite images to identify areas where the mosquito might be breeding, before looking for it on the ground.

The geographical range of a number of diseases and their vectors – the organisms that transmit them – have changed in recent years due to a number of environmental factors, write the researchers. There is some speculation that *Cx. modestus* is now more widespread in Europe because of changes in weather or changes to wetlands.

Cx. modestus needs specific conditions to thrive, preliminary analyses suggest that it prefers shallow, overgrown ditches in wetlands. Golding is investigating the specific marsh habitats in which these and other mosquitoes breed, and what effect wetland management has on these habitats.

SOURCE [1]

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