Letter

Potential West Nile virus mosquito vector, *Culex modestus*, is abundant and widespread in North Kent.

Culex modestus was reported in three nature reserves in North Kent in 2010 (Golding and others 2012); sixty years since the previous UK report. Isolated specimens were then reported from Dorset and Cambridgeshire (Medlock & Vaux, 2012). *Culex modestus* is considered the main bridge vector of West Nile virus in continental Europe, responsible for transmitting virus from birds to humans (Balenghein and others 2008).

Since 2012, medical entomologists at Public Health England and University of Greenwich have conducted follow-up surveys to update our knowledge on the distribution and status of *Culex modestus* in Kent, Essex and Dorset. In 2013 adult and immature sampling was conducted at five sites in North Kent: the three original foci at Cliffe pools, Northward Hill (both on Hoo peninsula) and Elmley marshes (Isle of Sheppey), and two additional sites at Chetney marshes (Iwade) and Oare marshes (Faversham). All five sites were found to harbour high densities of both immature and adult mosquitoes accounting for >90% of all adult mosquitoes trapped (Vaux *et al.*, in prep); thus extending the east-west distribution to 40kms. In 2014, additional sites were surveyed with immature *Cx. modestus* found at Swanscombe (Gravesend), Seasalter (Whitstable) and Stodmarsh (Canterbury); with an east-west distribution of 70kms. Adult sampling at Sandwich and Beckton (Barking) are so far negative. In Essex, adults were also trapped at Coalhouse Fort (East Tilbury) with adults and immatures at Pitsea (Basildon). So far no *Cx. modestus* have been found in marshes at Vange, Fobbing or Bowers (Basildon). Nor is there any further evidence of *Cx. modestus* in marshes in Poole harbour.

This growing evidence of a wide distribution and high density of *Cx. modestus* in Kent and possibly Essex highlight that *Cx. modestus* is endemic to the Thames estuary marshes. This contrasts with their apparent absence in the same marshes in 2003 (Hutchinson *et al.*, 2005). Their potential role in future disease transmission and their known nuisance biting of humans requires further investigation to determine a) the presence of virus in mosquitoes, birds and horses, b) the extent of their range or occurrence of other cryptic populations in the UK and c) to conduct entomological research to understand the mosquito's biology, ecology and biting habits within its endemic range and the potential for biocidal control. These findings highlight the value in maintaining a network of mosquito traps to ensure that disease risk assessment keeps pace with the changing status of disease vectors.

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