

Ticks challenge climate theory

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As key players in the spread of disease ticks aren't exactly man's best friend but, according to Oxford University scientists, they may offer a vital clue that climate change is not to blame for an upsurge in many human diseases.

Ticks spread Lyme disease throughout Europe and Tick-Borne Encephalitis from Eastern France, through Austria, Switzerland, Germany, Sweden and Eastern Europe including the Baltic States. The common assumption is that upsurges in such diseases in these regions are mainly due to climate change but new research published in *PloS ONE* contradicts this view.

The scientists focused on Tick-Borne Encephalitis (TBE) because, unlike Lyme disease, there are reliable records for TBE infection in the Baltic region dating back to 1970. These records show that, from 1992 to 1993, cases of TBE infection markedly increased in Estonia (64 per cent), Latvia (175 per cent) and Lithuania (1065 per cent).

The team then compared these records with climate records for the same period that show a significant increase in springtime temperatures since 1989. In theory these warmer springs could have increased transmission of TBE by enabling tick larvae and nymphs to be active earlier in the year. Yet, despite almost identical warming across the Baltic region, the researchers found significant variation in the timing and degree of TBE upsurge in different parts of each country.

'These uniform climatic changes cannot explain how the incidence of TBE varies from district to district with infection rates peaking at different times in neighbouring districts,' said Professor Randolph, who led the study. 'Our research suggests that, while changes in climate may play a role, socio-economic effects – such as those related to the break-up of the Soviet Union – have a much greater influence.' She adds that what is true for TBE is also likely to be true for other tick-borne diseases such as Lyme disease.

A report of the study, entitled 'Climate Change Cannot Explain the Upsurge of Tick-Borne Encephalitis in the Baltics', is published in *PloS ONE*.

Source: University of Oxford

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