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Abstract

The dispersal of *Culicoides brevitarsis* in eastern New South Wales and associations with the occurrences of arbovirus infections in cattle

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Distributions of the vector *Culicoides brevitarsis* Kieffer (Diptera: Ceratopogonidae) (determined from light trap data) and 2 arboviruses (determined from seroconversions in sentinel cattle) were studied in eastern New South Wales in 1993-94. *C brevitarsis* was recorded progressively from endemic areas on the north coast, to Nowra on the south coast, and westward to Scone, in the Hunter Valley. *C brevitarsis* also survived through winter at Paterson, in the Hunter Valley. Its apparently focal reappearance in this marginal area had no obvious effect on the broad pattern of its progression or the dispersal of Akabane and bluetongue viruses. These viruses were first recorded from foci near Coffs Harbour, on the mid-north coast. Their first occurrences at different locations were associated with those of *C*

brevitarsis, but not with each other. The viruses were found only within the recorded limits of the vector's distribution. Delays between the initial occurrence of *C brevitarsis* and first evidence of virus transmissions at locations ranged from 2 to 7 months. The delays decreased away from the points of focus and were negatively associated with the time of initial occurrence of the vector. Seroconversions to the virus were related to the presence of *C brevitarsis*. However, the densities of *C brevitarsis* had no apparent effect on the initial numbers of cattle seroconverting to either viruses. The results support the conclusion that the progressions of *C brevitarsis* and Akabane and bluetongue viruses were the result of gradual movements by the vector.