

Vector-Borne Diseases: Impact of Climate Change on Vectors and Rodent Reservoirs
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Monitoring of Ceratopogonidae in the German federal states Rheinland-Pfalz and Saarland

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In August 2006, the bluetongue disease arose for the first time in northwestern Germany. It came from the Netherlands/Belgium, although thus far the distribution had been restricted to Africa and the Mediterranean countries. The disease is caused by the bluetongue virus – an RNA virus – which infects ruminants, above all cattle and sheep. Vectors of the virus are midges belonging to the family Ceratopogonidae, all of the genus *Culicoides*. The main vector in Africa is *Culicoides imicola*, which does not occur in Germany. The Federal Ministry of Food, Agriculture and Consumer Protection initiated a monitoring of the ceratopogonids in nearly all federal states of Germany lasting from the end of March 2007 until January 2008 and encompassing ninety quadrants (45 x 45 km). The group Zoology/Parasitology evaluated twelve uv-light traps located at cattlefarms, two in the Saarland – at Merzig-Wadern and St. Wendel – and ten in different districts of Rheinland-Pfalz (Ahrweiler, Altenkirchen, Alzey-Worms, Bad Dürkheim, Germersheim, Kusel, Mayen-Koblenz, Rhein-Hunsrück-Kreis, Trier-Saarburg and the Vulkaneifel). Starting at the end of March, 2007, traps were used - always for seven nights at the beginning of each month. The insects were attracted by uv-light and sucked by a ventilator into a beaker filled with 70% ethanol. A mesh excluded the capture of bigger insects.

Most of the captured *Culicoides* spec. were *C. obsoletus* s.l. (92%), 3% *C. pulicaris* s.l. and 5% other *Culicoides* species. The number of all *Culicoides* found increased from May to June up to 54,703, was reduced in July (46,884), increased to a maximum in August (177,303) and was reduced again in September (28,171). On the average 4,700 *Culicoides*/week/farm were captured. This pattern of abundance changes occurred in Ahrweiler, Alzey-Worms, Kusel, Mayen-Koblenz, Merzig-Wadern, Trier-Saarburg, and in the Vulkaneifel. In the districts Altenkirchen and Bad Dürkheim, the abundance increased from March to August and was reduced in September. In the district Rhein-Hunsrück, the abundance was reduced in August for the first time and the decrease continued in September. In St. Wendel and in Germersheim, in some months no *Culicoides* were captured, but an increase in August was also evident. The most midges were trapped in the Vulkaneifel (90,727 in total from March-September). There the maximum was also reached in August with 54,912 *Culicoides* species. In the district Trier-Saarburg, only 1,509 *Culicoides* spec. were counted in this month, the minimum in comparison to the other eleven districts at the same period.

