

Vector-Borne Diseases: Impact of Climate Change on Vectors and Rodent Reservoirs
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Seasonal and geographic variation in the epidemiology of *Anaplasma phagocytophilum* and *Rickettsia* spp. in the hard tick *Ixodes ricinus* in Bavaria.

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The presence of tick-borne pathogens like *Borrelia* spp. and *Babesia* spp. in Germany has long been known. In recent years, also *A. phagocytophilum* and *Rickettsia* spp. have been detected in *I. ricinus* in Germany and thereby, a focal distribution has been suggested for *A. phagocytophilum*. This study investigates the prevalence of *A. phagocytophilum* and *Rickettsia* spp. in DNA-Extracts of 2862 unfed ticks (adults and nymphs) from 8 sites in Munich, collected regularly over 5 months, by PCR and Real-Time PCR.

The overall prevalence was 3.60% and 6.34% for *A. phagocytophilum* and *Rickettsia* spp. respectively, 0.35% were coinfecting. The prevalence varied between 0 % and 11.77%, regarding the different pathogens, areas and months under investigation. The prevalence of *A. phagocytophilum* in a recreational park in the centre of Munich, highly frequented by people and dogs, was higher than in a natural forest outside of Munich, whereas the prevalence of *Rickettsia* spp. was opposite. For both pathogens, the prevalence in adults was higher than in nymphs. 16S rDNA nested-PCR products of *A. phagocytophilum* and *gltA/ompA* PCR products of *Rickettsia* spp. were sequenced. The majority belonged to *Ehrlichia* sp. “Frankonia 2” and *R. helvetica*, the presence of other species or variants of *A. phagocytophilum* and *Rickettsia* spp. was also detected.

This study manifests clearly a strong seasonal and geographic variation of *A. phagocytophilum* and *Rickettsia* spp. and shows that a big city park is an area of accumulation for *A. phagocytophilum*. Further studies will be needed to evaluate risk areas of these pathogens.

