Beiträge zur
JAGD
&WILD
forschung · 38

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The role of european big game (*Capreolus capreolus* and *Sus scrofa*) as hosts for ticks and in the epidemiological life cycle of tick-borne diseases

In temperate zones of the Northern Hemisphere different strains of the *Borrelia* sensu lato complex and *Rickettsia* spp. belong to the most common vector-borne pathogens. Evidence suggests that the prevalences of tick-borne pathogens have increased significantly over the last decade. This is also true for the abundances of the most important tick vector species in Central Europe which is strongly associated with host density factors. To understand the fundamental determinants of the distribution and risk of infection by tick-borne diseases we focus on the role of wild ungulates in the life cycle of ticks and the pathogens which they transmit with particular regard to various genospecies of the *Borrelia burgdorferi* sensu lato complex and *Rickettsia* species. European wild boar (*Sus scrofa*) and roe deer (*Capreolus capreolus*) belong to the most common and synanthropic species of wild game, occurring in urban, suburban and rural environments. They play an outstanding role as tick hosts because of their high (and increasing) population densities and their broad distribution. However, as infection risk depends in part on the degree of contact between humans and infected ticks, it is necessary to understand the natural host relationship between ticks, vertebrates and pathogens to gain information that allows for the risk analysis of tick-borne diseases. In our study, the prevalence of selected pathogens in ticks, host organs and host blood samples was determined by PCR. Subsequent to a positive PCR-result, we genotyped the *Borrelia* species. Furthermore, tick species removed from over 250 ungulates were catalogued and quantified. This study aims to demonstrate and quantify the role of big game in the circulation of tick-borne pathogens with a high infection risk for humans and their influence on tick and pathogen abundance, as well as calling attention to the raising zoonotic potential even in urban areas.

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