



P 13 Prevalence of tick-borne pathogens in ticks collected from birds in Latvia

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The prevalence of *Borrelia* spp., *Anaplasma* spp., and *Rickettsia* spp. in ticks is an important factor for the emergence of human Lyme borreliosis, anaplasmosis, and rickettsiosis, respectively. The aim of the present study was to detect the prevalence of *Borrelia burgdorferi* sensu lato, *Anaplasma phagocytophilum*, and *Rickettsia* spp. in ticks collected from birds in Latvia.

In autumn 2009, ticks were collected from birds in the Lake Pape Nature Park in Latvia that is an important resting place for migratory birds. Ticks were collected from migratory birds (n=41, order Passeriformes, 7 genera and 9 species). In total, 93 *Ixodes ricinus* ticks were collected. Identification of the pathogens in ticks was performed by real-time polymerase chain reaction (PCR) assays that amplify the 23S ribosomal RNA gene from *B. burgdorferi* s.l. and the *msp2* gene from *A. phagocytophilum*. Single PCR was used to amplify the *gltA* gene from *Rickettsia* spp. with subsequent sequencing for species identification.

Our results demonstrated that the birds *Erithacus rubecula* and *Turdus* sp. were more infested with ticks than other bird species. The majority of infected ticks were from *Turdus* sp. birds. Four birds were infested with more than one pathogen-positive tick, and in addition some of these ticks were positive for 2 pathogens. *B. burgdorferi* s.l. was detected in 18.3%, *A. phagocytophilum* in 2.2% and *Rickettsia helvetica* in 11.8% tick samples. Coinfection of *B. burgdorferi* s.l. with *R. helvetica* was found in 6.5% of the ticks.

This study suggests that Passeriformes birds may serve as reservoir hosts for more than one tick-borne human pathogen simultaneously and may provide their spread to distant geographic locations. Further investigations are needed to get more information about these pathogens and also *Babesia* spp., their coexistence in ticks and birds as well as to reveal the connection with the seasonal activity of ticks and birds.

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