

P 48 Tick-borne pathogens in ticks collected on wild birds from Lithuania and Norway

Algimantas Paulauskas^a, Jana Radzijeuskaja^a, Ausra Antusaite-Chatkeviciene^a, Olav Rosef^b

^a Vytautas Magnus University, Vileikos 8, Kaunas, Lithuania

^b Telemark University College, Hallvard Eikas plass, Bø i Telemark, Norway

Wild birds are increasingly considered important in the global dispersal of tick-borne pathogens as they are capable of transporting infected ticks over large distances. It is possible that migratory birds are involved in dispersing infected ticks from eastern and central Europe to Scandinavian countries where they could raise a public health risk. The aims of this study were to investigate tick-borne pathogens like *Borrelia burgdorferi sensu lato*, *Anaplasma phagocytophilum*, and tick-borne encephalitis virus in ticks collected from wild birds in Lithuania and Norway, and to define species of birds involved in the spreading of infected ticks.

During spring and autumn of 2006–2010, migrating passerine birds were captured at ornithological stations in southern Norway (Jomfruland and Lista) and in western Lithuania (Ventes Ragas). In Norway, 608 immature ticks were collected from 157 infested passerine birds, in Lithuania 728 ticks from 287 infested birds. The bird species most infested with ticks were *Luscinia luscinia* in Lithuania and *Turdus merula*, *Hippolais icterina*, and *Sturnus vulgaris* in Norway.

Identification of *B. burgdorferi* s.l. and *A. phagocytophilum* pathogens was performed by PCR, real-time PCR, and sequencing. Tick-borne encephalitis virus was investigated in 460 ticks collected from Lithuania by using real-time PCR.

A total of 21 out of 157 birds in Norway carried *B. burgdorferi* s.l.-infected ticks. *B. burgdorferi* s.l. pathogens were detected in ticks collected from *Turdus merula*, *T. philomelos*, *T. pilaris*, *Sturnus vulgaris*, *Fringilla coelebs*, *Carduelis cannabina*, *Carpodacus erythrinus*, and *Oenanthe oenanthe* bird species. Seven out of 109 (6.4%) larvae and 48 out of 499 (9.6%) nymphs were infected with *B. burgdorferi* s.l. The bird species that harboured most infected ticks was *T. merula*. *B. garinii* was the most frequent species detected (with prevalence of 80%) followed by *B. afzelii* and *B. valaisiana*. Coinfection of different *Borrelia* genospecies was detected in 4% of ticks.

A. phagocytophilum infection rate in ticks collected from birds in Jomfruland was 11% (42 from 371), in Lista 2% (6 from 297). This pathogen was detected in ticks collected from *Erithacus rubecula*, *F. coelebs*, *Sylvia borin*, *S. vulgaris*, *T. merula*, and *T. philomelos* bird species. *A. phagocytophilum* infection was not detected in ticks collected from birds in Lithuania, however, other rickettsial infections were detected in 32% of ticks.