

The comparative study of vector-borne pathogens in dogs and red foxes from the Mazovia voivodeship

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The identification of the vectors and reservoir hosts for vector-borne pathogens in the environment is crucial for learning how these microorganisms spread to new areas and how certain territories become endemic. It is a key point for risk assessment and the prevention of vector-borne diseases. The extending geographical range of some vectors, and the changing prevalence and appearance of new of vector-borne pathogens reinforces the need for constant monitoring of this organism in both vectors and reservoir hosts.

Dogs (*Canis familiaris*) and red foxes (*Vulpes vulpes*) are canids well known to be reservoir species of parasites causing diseases of humans and other animals. As wild burrow-living animals, red foxes are more prone to infestation with ectoparasites, and so can serve as a good source of vector-borne pathogens. Recent research in other European countries has revealed a high prevalence of *H. canis* in red foxes. This species was mentioned as a potential reservoir host for *Babesia canis*, the protozoan causing canine babesiosis. Dogs are the main source of *Dirofilaria repens*, a filarial nematode which is dangerous to humans. The potential of the red fox to spread this parasite in Poland is still unknown.

The aim of this preliminary study was to compare the prevalence of vector-borne pathogens in dogs and red foxes in the Mazovia voivodeship and to confirm their role as reservoir hosts.

Samples of blood from dogs, or of the spleen and blood isolated from carcasses of red foxes, were tested by PCR for the presence of *Babesia* spp., *Dirofilaria repens*, *Hepatozoon canis*, *Borrelia burgdorferi* s.l., *Anaplasma phagocytophilum* and *Bartonella* spp.

Our results confirm the role of the red fox as a reservoir host for *H. canis*, but no *D. repens* DNA was detected in the samples. The opposite was found in dogs, confirming their role as reservoir for *D. repens*. *Babesia vulpes* and *A. phagocytophilum* were found only in red foxes; however, *B. canis* was detected in both canidae species. Our findings confirm for the first time the potential role of the red fox as a source of this parasite in Poland. A low prevalence of *B. burgdorferi* s.l. was detected in dogs suffering from canine babesiosis.

This study was supported by the National Science Center grant Sonata Bis 2014/14/E/NZ7/00153.