

Are red deer, roe deer and fallow deer are the source of infection and a threat for hunters ?

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Introduction and purpose: Recently in Europe an increase in the population of red deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*), and fallow deer (*Dama dama*) has been observed (1). Research on the prevalence of *Leptospira* infections in Polish cervids has been performed for the first time. Our goal was to determine if family *Cervidae* is a source of *Leptospira sp.* for hunters which are the target group of risk.

Methods: During 2014/2015 hunting season, 147 blood samples from red deer, roe deer, and fallow deer were collected. The animals originated from different geographical regions across Poland. Serum samples were tested by microscopic agglutination test (MAT) (2) for the presence of specific antibodies to the following *Leptospira* serovars: *Icterohaemorrhagiae*, *Grippotyphosa*, *Sejroe*, *Tarassovi*, *Pomona*, *Canicola*, *Bratislava*, *Hardjo*, *Ballum*, *Zanoni*, *Hebdomadis*, and *Poi*.

Results: From a total of 147 serum samples, antibodies against particular *Leptospira* serovars were found in only seven samples (one serum sample reacted with two serovars, which produced eight positive reactions), resulting in overall prevalence at the level of 4.8% from 12 Polish provinces (Table 1). Serum antibody titres specific to *Grippotyphosa*, *Pomona*, and *Zanoni* serovars were found.

None of the sera had titres to serovars *Icterohaemorrhagiae*, *Sejroe*, *Canicola*, *Bratislava*, *Hardjo*, *Ballum*, *Hebdomadis*, or *Poi*. Seropositive samples from tested animals were found in the following provinces: Dolnośląskie (*Zanoni* - titre 1:100; *Pomona* - titre 1:400), Podkarpackie (*Pomona* and *Grippotyphosa* - titre of 1:100), Zachodniopomorskie (*Zanoni* - titre 1:100; *Grippotyphosa* - titre 1:200) and Opolskie (*Grippotyphosa* - titre of 1:100) while the other eight provinces were negative to the tested *Leptospira sp.* serovars.

Table 1. *Leptospira interrogans* antibody titres for 7 positive red deer, roe deer, and fallow deer hunted during 2014/2015 season in Poland

Serovar	Number of antibody-positive samples (%)			
	1:100	1:200	1:400	Total
Pomona	2 (1.4%)	0	1 (0.7%)	3 (2.0%)
Grippotyphosa	2 (1.4%)	1 (0.7%)	0	3 (2.0%)
Zanoni	2 (1.4%)	0	0	2 (1.4%)

Conclusions: In conclusion, the presented data confirm that there is a low number of *Leptospira* infections among deer in Poland. The results also indicate that deer is probably not an important vector in the spread of leptospirosis in humans, especially people working in the forest environment including hunters. Due to the low number of tested samples, there is a need to assess the risk of infections of *Leptospira sp.* on the higher number of samples tested among red, roe, and fallow deer.

References:

1. Research Station of Polish Hunting Association—PZL. Czempień. 2013. The Situation of Animals in Poland 2013. pdf
2. Wolff JW. The laboratory diagnosis of leptospirosis. Illinois: Charles C. Thomas Publishers; 1954. p. 31–51.

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