

## Neosporosis in domestic and sylvatic circulation

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Neosporosis is a disease with a worldwide distribution caused by the intracellular protozoan parasite *Neospora caninum*, associated with mainly neurological symptoms in dogs and abortions in ruminants with a heteroxenous life cycle. Domestic and wild canids are the definitive hosts of the parasite, which shed oocysts after ingestion of tissue cysts from infected intermediate hosts (including ovine, equine, bovine or canine species), thus contaminating the environment.

The objective of the study was to assess the prevalence of anti-*Neospora* antibodies in wildlife from various districts of Slovakia, where neosporosis was detected previously in cattle post-abortion; and to confirm the presence of the parasite by PCR. Between 2009–2015, blood and organ samples (brain, heart and skeletal muscle) of 341 red foxes (*Vulpes vulpes*), 23 wolves (*Canis lupus*), 204 wild boars (*Sus scrofa*), 189 deer [121 red deer (*Cervus elaphus*); 50 roe deer (*Capreolus capreolus*); 18 fallow deer (*Dama dama*)], 173 brown bears (*Ursus arctos*), 32 cormorants (*Phalacrocorax carbo*) and 111 micromammals (*Apodemus agrarius*) were collected.

Anti-*Neospora* antibodies were detected in 24.6% of red foxes; 34.8% of wild boars; 37.6% of all examined deer (37.2% red deer; 53.8% roe deer and 22.2% fallow deer); 10% great cormorants and 15.3% of the field mice. In general, molecular evidence of *N. caninum* was noted less frequently: 20.3% in red foxes; 23.4% in wild boars; 12.7% in brown bears; 20.5% in red deer; 9.5% in roe deer, with no evidence confirmed in wolves, fallow deer or cormorants. Our results indicate that *Neospora* infection is in circulation in wildlife in Slovakia, and is most widespread in locations with high seroprevalence in cattle following abortion. The presence of dogs in farms is considered a risk factor for livestock, and this was confirmed by high seropositivity in farm dogs in Slovakia (45.9%). The high infection rate in examined foxes is probably associated with consuming infected prey. In addition, oocyst contamination of the environment can also serve as a source of infection for other animal species. Although no vaccine against neosporosis is available, control strategies in farm management should minimise vertical and horizontal transmission. It is advisable to avoid feeding dogs with raw or undercooked meat, and take precautions with water for animal consumption.

The study was supported by the Slovak Scientific Grant Agency VEGA No. 2/0068/15.