Contribution ID: **415** Type: **Poster presentation**

Estimating Toxoplasma gondii exposure in Swedish wolverines (Gulo gulo) –a retrospective study

Tuesday, October 6, 2026 4:09 PM (1 minute)

The wolverine (*Gulo gulo*), the largest member of the family Mustelidae, is a top predator and scavenger found in circumpolar regions of North America and Eurasia. Due to its trophic position and large home range sizes, the species could serve as a sentinel for the health of northern ecosystems. The species is listed as Vulnerable by the IUCN; still, limited information exists on the potential importance of diseases in regulating and/or threatening the species, especially in the recovering Scandinavian population. *Toxoplasma gondii* is a zoonotic foodborne parasite that has been reported in mortality events of various Mustelids. Exposure to the parasite has been found in Canadian wolverines, but there is no information from Scandinavia, where felids, the parasite's final host, are less common than in North America. Using a commercial multi-species ELISA kit, we tested samples (n=108) collected between 1994 and 2003 from Swedish wolverines for the presence of antibodies to *T.gondii.* A seroprevalence of 24% was found, which is lower than previously reported from Canada (Northwest Territories 62%, Nunavut 41%, but British Columbia 0%). Surprisingly, there was no significant difference in exposure between sex (18% male vs. 28% female) and age (33% adult vs. 19% juvenile) groups. With climate change, the northward expansion of parasites is expected; thus, monitoring the population health of Swedish wolverine populations is relevant to both One Health and conservation biology.

Keywords

`Toxoplasma gondii, wolverine, ELISA, seroprevalence, Scandinavia`

Registration ID

`51`

Professional Status of the Speaker

`Senior Scientist`

Junior Scientist Status

`No, I am not a Junior Scientist.`

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Session Classification: Coffee & Poster Viewing II

Track Classification: Conservation, Biodiversity & Wildlife Health