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INTRODUCTION

There is currently considerable interest in understanding the transmission of pathogens and the range of different variables that influence infection dynamics. Wild rodents pose a particular threat to human communities because they constitute the most abundant and diversified group of all living mammals. *Toxoplasma gondii* is an intracellular Apicomplexan parasite with a broad range of intermediate hosts, including humans and rodents. Rodents are considered to be reservoirs of pathogens for their predators that include cats, pigs and dogs.

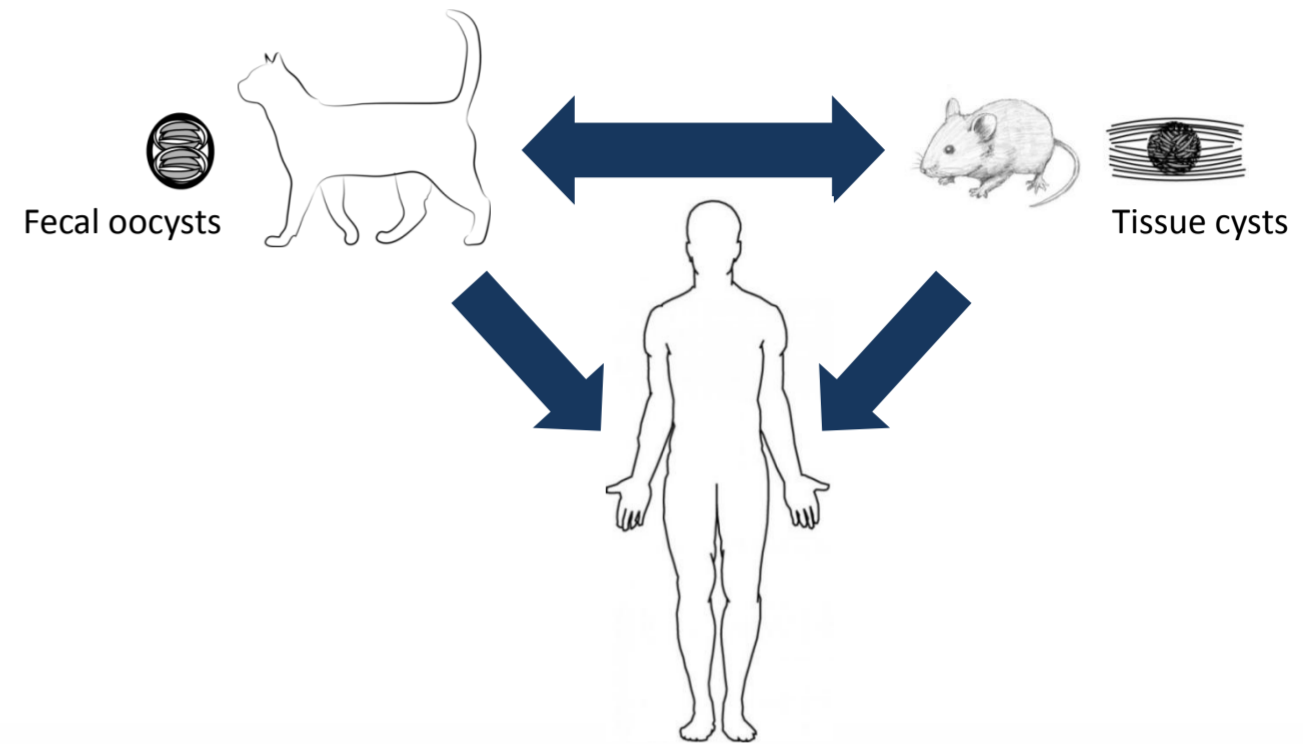


Figure 1. *T. gondii* life cycle

MATERIALS AND METHODS

We conducted a multi-site, long-term study on *T. gondii* in northeastern Poland. Our objectives were to monitor the seroprevalence of *T. gondii* in the four abundant vole species found in the region (*Myodes glareolus*, *Microtus arvalis*, *Microtus agrestis*, *Alexandromys oeconomicus*) and to assess variation in seroprevalence attributable to both intrinsic and extrinsic factors that were quantified. A bespoke enzyme-linked immunosorbent assay was used to detect antibodies against *T. gondii*.

RESULTS AND CONCLUSIONS

We detected *T. gondii* antibodies in the sera of all four rodent species with an overall seroprevalence of 5.5% (3.6% for *M. glareolus* and 20% for other vole species). Seroprevalence in bank voles varied significantly between host age and sex. These results contribute to our understanding of the distribution and abundance of *T. gondii* in voles in Poland and confirm that *T. gondii* circulates also in *M. glareolus* and *Microtus/Alexandromys* spp. Therefore, they may potentially play a role as reservoirs of this parasite in the sylvatic environment.

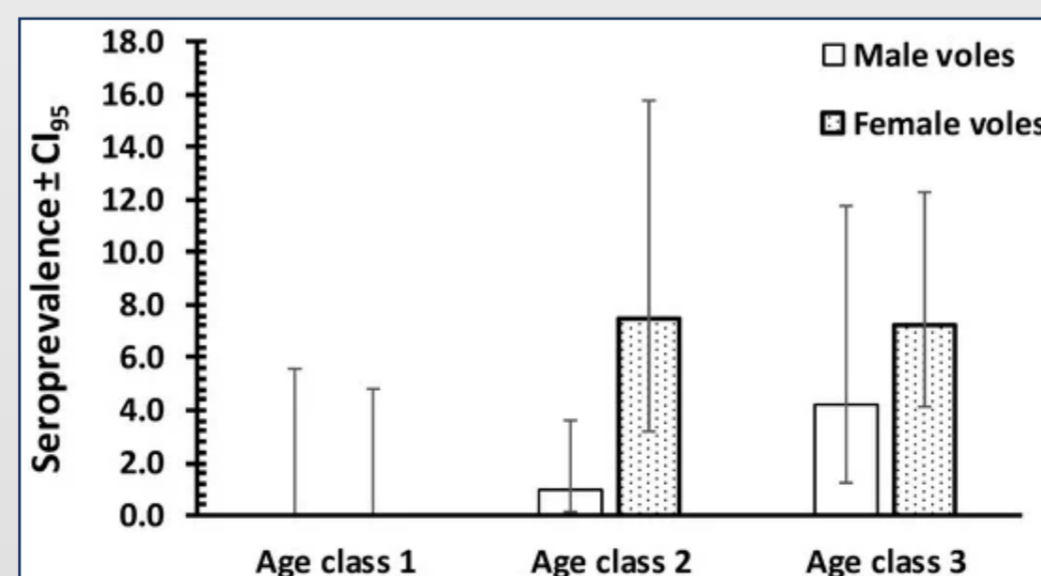


Figure 2. Seroprevalence of *T. gondii* in bank voles in Poland by host sex and by host age class (class 1—immature juvenile voles, n = 138; class 2—young adult voles, n = 173; and class 3—breeding older animals, n = 196). Error bars indicate 95% CI.