Abstract Title

Parasite surveillance in Prince Edward Island (PEI): screening previously frozen red fox lungs for *Crenosoma vulpis*, *Capillaria aerophilia* & *Angiostrongylus vasorum*

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Abstract Content

Crenosoma vulpis, *Capillaria aerophilia* and *Angiostrongylus vasorum* are the three most common lung worms that affect red foxes (*Vulpes vulpes*) in Canada. These worms spread between canids through intermediate hosts such as slugs, snails, and earthworms. In a previous study with a sample population of 51 Prince Edward Island (PEI) foxes, 78.4% were infected with *C. vulpis*, and 68.6% were infected with *C. aerophilia*. Another study concluded that *A. vasorum* has been present in foxes on PEI since at least 2018. This study aims to perform two screening techniques together (lung flush and dissection) to retrospectively determine the prevalence of these common lungworms in a sample population of previously frozen PEI fox lungs. Sixty previously frozen fox lungs from 2012 to 2021 underwent lung flushes and dissection to extract nematodes. The water from the flush and the sediment from the dissection were examined under a dissecting microscope. Any parasites found were organized by species and sex. Of the 60 red fox lungs, 88.3% (n = 53) were positive for *C. vulpis*, 90% (n = 54) for *C. aerophilia*, and 5.0% (n = 3) for *A. vasorum*. *Angiostrongylus vasorum* was identified by morphological identification in fox samples from 2014, 2015 and 2021, and genetic sequencing for confirmation is pending. Previous studies used fecal detection, whereas this study used lung flush and dissection. The higher prevalence in this study may indicate that infection prevalence has increased in PEI. However, sporadic shedding of nematode larvae and eggs in feces could account for such a difference in diagnostic tests. In the future, it would be beneficial to continue lung flushes and dissections to have a larger sample size to confirm trends and statistical significance. In the next step, we intend to conduct an infectivity trial, which involves feeding L1 larvae extracted from female *C. vulpis* to slugs and digesting them after one month to investigate them for viable L3.

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