
The role of muskrats in the spread of *Echinococcus multilocularis* in Flanders, Belgium.

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Abstract

Muskrats are a known intermediate host of *Echinococcus multilocularis*, a tapeworm of foxes and other carnivores that can lead to Alveolar echinococcosis in humans (HAE). *Echinococcus multilocularis* has been increasing both in range and prevalence in Europe. No presence of the parasite was found in muskrats caught in Flanders between 1994 and 2008, even though 16673 animals were dissected with special attention given to parasites in the abdomen. Although no infected individuals were found in Flanders, in 2008 a first infected muskrat was caught just across the regional border of Flanders, in Wallonia. After this and all muskrats caught in Flanders and just across the border in Wallonia and France were collected and dissected with the aim of understanding the prevalence of this parasite. Visual examination of the livers of 15948 muskrats lead to finding 203 infected animals between 2008 - 2017. Regionally we found 82 infected animals out of 9425 (0.87%) in Flanders. All of the infected animals were found in municipalities bordering the Flemish-Walloon border. Although EM infection was expected to spread northwards from Wallonia to Flanders, this was not observed in the prevalence of the infection in Flemish muskrats. Here we argue that keeping muskrat populations low through extensive culling programs might have aided in stopping the spread of *Echinococcus multilocularis*.

Keywords: Muskrat, *Echinococcus multilocularis*, parasites

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