

## Surveillance of *Echinococcus multilocularis* in rodents in the vicinity of the finding of the first infected red fox (*Vulpes vulpes*) in Sweden

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### Introduction

The fox tape worm *Echinococcus multilocularis* (EM) was recently detected in Sweden for the first time. Increased surveillance of foxes have shown that the prevalence on country basis is low, approximately 0.1-0.2%. In an attempt to identify the intermediate host(s) included in the life cycle of EM in Sweden, local rodent populations were sampled in the vicinity of the first location (Västra Götaland county) of EM discovery.

### Methods

Sampling was performed in the south west part of Sweden, within a 50 km radius surrounding the finding of the first infected fox. The aim of the sampling was to maximise the number of likely fox prey of possible EM competent intermediate hosts, though without any particular statistical design.

### Results

In total, 236 rodents were trapped in April 2011. The most commonly trapped species was *Arvicola amphibius* (former *A. terrestris*), followed by *Myodes glareolus*, *Microtus agrestis*, *Apodemus sylvaticus*, and *A. flavicollis*. By May 31, a total of 152 rodents have been autopsied and no macroscopic lesions of EM had been detected. Final results are expected in June 2011.

### Discussion

*A. amphibius* was the most commonly caught rodent, is the largest in size and perhaps exhibits the highest biomass of voles per unit area where it occurs. *Microtus arvalis*, one of the main intermediate hosts for EM in southern Europe, does not occur in Sweden and *Ondatra zibethicus*, another known intermediate host for EM only occurs in the northern part of Sweden.

As the prevalence in rodents is expected to be lower than in foxes, the probability of finding EM in 200 rodents is probably rather low. Therefore, there is a need for additional, preferably targeted, sampling. One strategy could be to focus on species with high local densities and thus high probability of attracting foxes. In such favourable habitat patches, the probability of foxes defecating, and thus deposit EM eggs, may also be considerable although defecation otherwise is used for territorial markings. This may in turn render these rodent populations higher probability of EM egg exposure from fox faeces, and subsequent higher prevalence to EM infection. A parallel attempt to obtain rodent material, that has proven successful for other purposes, is to utilize the habit of for example different owl species to cache preyed rodents in artificial nest boxes, by collecting such rodents and replacing them with laboratory mice.