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Publication: DS 08-007
Last Revised: March 2010



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Parasites of Caribou: Brain Worm Infestation



Introduction

Brain worm is the common name for a disease of caribou that was first recognized in Central Newfoundland in the 1970's; and it has since been seen in other caribou herds, including most recently the caribou of the Southern Avalon. Its more scientific name is Cerebrospinal Elaphostrongylosis (CSE) and is caused by the nematode *Elaphostrongylus rangiferi*. Infection can cause severe illness and death in affected animals, and it has a particularly strong impact on herds that have not been previously exposed to this parasite.

As this is primarily a disease of caribou, there is no direct public health threat to humans. Moose can carry the worm and will sometimes develop signs of illness. In Scandinavia, there are reports that sheep and goats that graze on contaminated pasture can become sick. There are, however, no such reports in Newfoundland from areas where both sheep and caribou graze.

History

In 1908, 300 reindeer were introduced into Newfoundland from Norway. This was done in order to supply Newfoundlander's with a readily available food supply, as the native caribou herds were diminished due to hunting. The reindeer landed in St. Anthony and were herded to various parts of the island. It is believed that these reindeer (which are very closely related to the caribou) brought this worm into the province.

Life Cycle

This worm goes through different stages of development from an egg to a number of larval (immature) stages, until it finally becomes the adult worm. To complete this life cycle, the worm must live in two different hosts. The **final host** is the animal that contains the adult worm or egg-laying part of the worm's life cycle. The **intermediate host** is the animal that contains one or more of the larval stages of the worm. For brain worm, the caribou is the final host, and the intermediate hosts are snails and slugs.

Snails and slugs crawl over the fecal pellets of infected caribou. The fecal pellets contain the larvae of this worm, which penetrates into the snail or slug. When the caribou is eating vegetation, it accidentally eats the snails or slugs that are on the vegetation. The larvae then penetrate the caribou's stomach wall and go into the spinal cord where they can travel to the brain. Once in the brain, they develop into young adults and go back down the spinal cord to the legs. The worm reaches maturity in the large flat muscles around the shoulder blades and the hindquarters. The female worms penetrate blood vessels and lay eggs. These eggs go to the lungs and develop into larvae, which then travel up the windpipe (trachea) and get swallowed. Once swallowed, the larvae now get excreted with the fecal pellets.

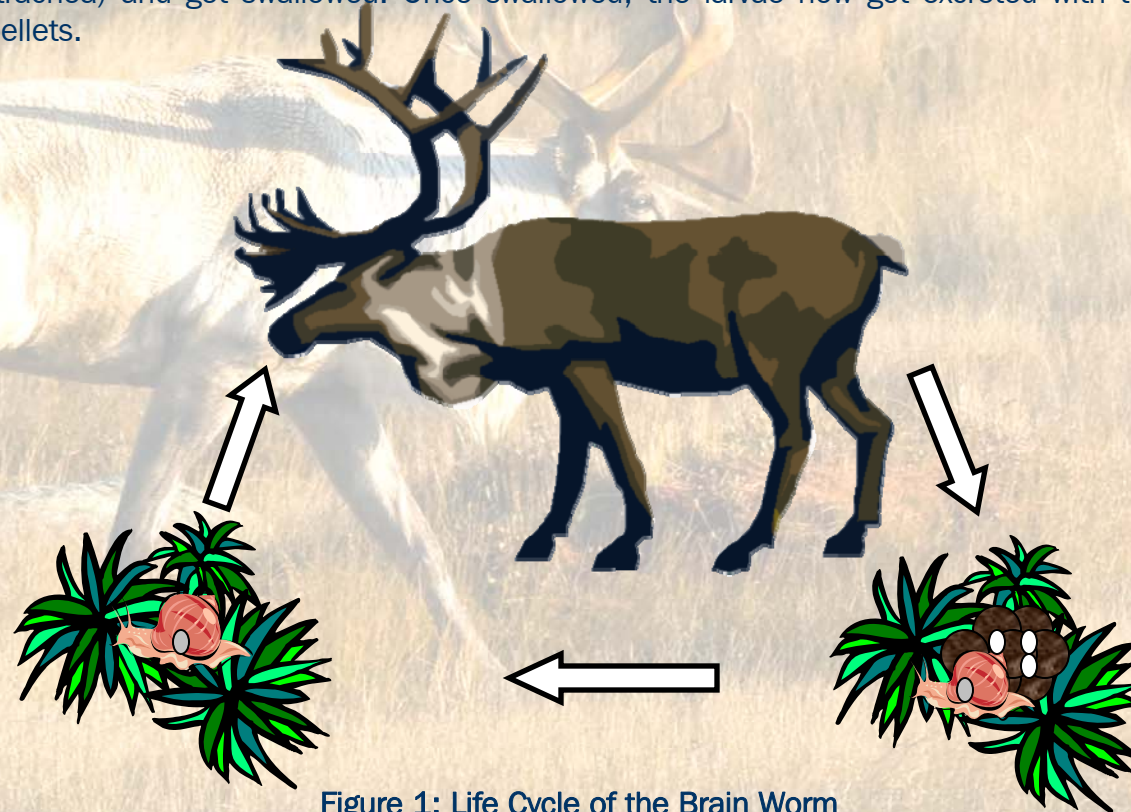


Figure 1: Life Cycle of the Brain Worm

Signs in Sick Caribou



A severely infected caribou.

Caribou infected with this worm show several behaviour changes, including isolating themselves from the herd, staying in one location, losing their fear of humans, seeming disoriented and developing an abnormal posture and gait. Sick animals may even be seen walking in a continuous circle. They may also become thin even though they continue to eat.

If you should see a caribou displaying these signs, you should not hunt it but inform a Conservation Officer of the animal's location.