

## Echinococcus granulosus in Maine Moose

Over the last three years Inland Fisheries and Wildlife has been collaborating with the University of Maine Animal Health Lab in examining the presence of lungworms (*Dictyocaulus spp.*) in moose. Lungworms have been noted in moose that have been found dead in late winter with heavy winter tick loads and the combination of both parasites has been implicated as a cause of calf mortality.

This past fall, students once again increased sampling intensity of moose lungs from harvested animals. This led to the University of Maine-Animal Health Lab, finding *Echinococcus granulosus* (E.G.) cysts in some moose lungs. EG is a very small tapeworm that has a two part lifecycle; one in canids (coyotes/foxes/domestic dogs) and the second in moose. There are several known genotypes of this tapeworm, and genetic testing of the Maine tapeworms found that this EG is the northern, or least pathogenic, form. Although *Echinococcus granulosus* can infect humans, the form that is known to do so most often is the sheep-dog genotype. Finding the northern, wild-type form of EG in moose in Maine suggests that likely wild canids in Maine are infected and that possibly domestic dogs are infected as well, and that fact may allow for human exposure to this parasite. It is also very likely that we have coexisted with these tapeworms for years with no apparent problems having not actively looked for them prior to this work.

The adult tapeworm lives in the intestines of the canid host, while the larval form lives in the lungs or liver of an infected moose. Humans may become infected by eggs of the parasite, which can be picked up by contact with canid feces.

In conjunction with the Maine Center for Disease Control and Prevention and University of Maine Animal Health Lab/Cooperative extension, we recommend the following:

- Hunters avoid harvesting sick or injured animals.
- Hunters and trappers should always wear rubber or latex gloves when field dressing animals.
- Wild game meat should be thoroughly cooked.
- People should avoid contact with dead wild animals
- People should avoid contact with carnivore feces
- After consultation with your veterinarian, regularly deworm pets with a product that works on tapeworms
- Do not let domestic pets eat the organs from either hunter-harvested animals or from "road kill" animals

- Practice good personal hygiene-wash hands and contaminated clothes, especially after handling animals or anything that could be contaminated with feces