

## **GIANT LIVER FLUKE BRITISH COLUMBIA WILDLIFE HEALTH FACT SHEET**

### **A new finding in bighorn sheep in BC**

Since, February 2021, giant liver fluke infection has been confirmed in several mature male bighorn sheep in the Radium area. Giant Liver Fluke has not previously been reported in bighorn sheep in B.C. Some infected sheep were thin, sick and died and other infections were identified after death by vehicle collision. The number of bighorns infected in this herd is unknown, however, since the fluke is present in the area if other sheep graze the nearby wetlands they too may become infected.

### **What are giant liver flukes?**

Flukes are internal parasites or flatworms in the family Trematode. There are a variety of fluke species that can infect wild and domestic animals and many do not cause obvious health issues. Flukes can be found in several different anatomical locations depending on the species. One of the most obvious, Giant Liver Fluke or *Fascioloides magna*, is reported in some populations of wild ungulates in BC, often incidentally with harvest when the large, oblong, flat worms are seen in the liver on field dressing. The natural hosts for *F. magna* includes cervids (members of the deer family) and bovids (cattle). Bighorn sheep, domestic sheep and goats, and other species are considered abnormal hosts.

Giant Liver Fluke infections are present in wild cervids as well as domestic livestock in some areas of the province (e.g. Vancouver Island, East Kootenay). Reports in wildlife are sporadic and generally infections have few flukes present. A single event occurred in the Columbia Trench in the 1990s when multiple elk died with liver fluke and severe bacterial infections of their liver in an area where cattle were also affected. Cattle ranchers and sheep producers report that the parasite is common in the north Columbia Trench where animals graze wetland areas so it can be assumed that the parasite is and has been present in the area for a long time.

### **What are the signs of giant liver fluke infection?**

Animals infected with Giant Liver Fluke may appear healthy or show general signs of illness such as poor body condition, lethargic or abnormal behaviour, or death. Signs vary with the animal species and how many flukes are present as well as the stage of infection. Since wild and domestic sheep are abnormal hosts, they may have higher death rates.

In elk, white-tailed deer, and cattle, mature flukes can be up to 8 cm long and are usually restricted to the liver in dark, debris filled capsules. Tracks containing this material are usually visible in the liver and there may be extensive scar tissue present. In abnormal hosts, internal damage may be much more extensive due to immature flukes migrating within the body.

### **How is it spread?**

Giant liver fluke is not transmitted from one animal to another. Instead, it requires an aquatic snail as an intermediate host in a multi-stage life cycle. In natural hosts, flukes mature in the liver and produce eggs that enter the environment in the host's feces. The eggs hatch into an aquatic stage that then infects snails. Infective larvae are produced by the snails and attach to aquatic vegetation. Animals grazing in and around wetlands consume the larvae on the vegetation. Flukes that infect abnormal hosts, such as sheep, rarely mature and produce eggs.

### **Can flukes infect humans, livestock, and pets?**

Giant Liver Fluke infection has never been reported in humans, dogs, or cats. The meat from infected animals is safe to handle and eat, however, hunters are advised not to consume meat from animals found dead, obviously ill or acting abnormally prior to death. Infected organs should be discarded although eating liver flukes cannot cause an infection.

Domestic cattle, horses, other livestock and grazing species are susceptible. In areas of the province with Giant Liver Fluke, flukes are often identified in the livers of cattle that do not show clinical signs of infection and the livers are discarded at slaughter. The damage to the liver can be extreme and it can be complicated by secondary bacterial infections. Drug treatments for fluke infections in domestic animals are available but proper dosing is required with repeated treatment(s), therefore treatment is impractical for free-ranging wildlife.

### **What can be done to manage liver fluke in bighorn sheep?**

There is no effective treatment option for the Radium bighorn sheep herd. De-worming drugs must be correctly dosed and repeated over time to remove the parasite and capture and treatment of the whole herd is not possible. The most obvious management action is to prevent infection of bighorn sheep by preventing exposure to the larval stage of the parasite in the wetlands. Provincial wildlife professionals, in collaboration with Parks Canada and the local community are monitoring the herd and animal health and investigating options for future actions.

### **What to do if you see an animal with signs of liver fluke?**

To better understand this parasite, where it occurs and in what B.C. species, the Wildlife Health Program is requesting reports of sick bighorns in the Radium area. Please send reports with photographs and save suspected liver tissue frozen. Contact the BC Wildlife Veterinarian at 250-751-3234/caeley.thacker@gov.bc.ca or the Wildlife Health Laboratory at 250-751-7246. For additional information on Giant Liver Fluke or other wildlife diseases refer to the BC Wildlife Health website at [www.gov.bc.ca/wildlifehealth](http://www.gov.bc.ca/wildlifehealth).

### **Additional Information/References**

Pybus M. 2001. Chapter 6: Liver Flukes. *In: Parasitic Disease of Wild Mammals; Second Edition*. Iowa State University Press. Ames, Iowa, USA. <https://doi.org/10.1002/9780470377000.ch6>

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