



HEARTWORMS AND BIRD DOGS

Hunters and other dog owners in Montana may be surprised by the increased number of TV commercials aimed at urging preventative treatment for heartworms, a nasty parasitic invasion of your pet's circulatory system. Montana is situated far enough north of most heartworm endemic areas, so preventative treatments are considered by some dog owners unnecessary and an expensive practice. But as heartworm incidence reports increase maybe due to range expansion or better tracking technology, some veterinarians are recommending that pet owners prepare for the worst; this includes bird hunting dog owners.

As per Wikipedia: "Heartworm is a parasitic roundworm (*Dirofilaria immitis*) that is spread from host to host through the bites of mosquitoes. The heartworm is a type of filaria, a small thread-like worm in the phylum Nematoda (added by author). The definitive host is the dog but it can also infect cats, wolves, coyotes, foxes and other animals, such as ferrets, sea lions and even, under very rare circumstances, humans. The parasite is commonly called "heartworm" because the adult reproductive stage of its life cycle resides primarily in the right ventricle of its host where it can live for many years. Heartworm infection may result in serious disease for the host."

The heartworm life cycle includes several molt stages of its larva then these microfilaria are ingested by a mosquito from an infected host then carried to another animal. The larva cannot mature into an adult worm without passing through a mosquito system and remaining there for at least two weeks dependent upon ambient temperatures. There is a 60 day window from exposure to the microfilaria to adult heartworm; the presence of larva are detectable with a blood test after six months.

Because survival of the "microfilaria" within the mosquito requires temperatures above 57°F and larval development requires 67°F+ for a two week period, the likelihood of survival in normal Montana climates is considered slim to none by many Montana vets. Other practitioners concerned with an apparently expanding range for heartworm, an increasingly mobile society, and the persistent fact that infestations can be found in all 50 states strongly recommend preventative treatments regularly. So, what's the reality?

Dr. Marty Zaluski, Montana's State Veterinarian, informs us that heartworm infections are reportable to his office but such reports have been neglected in recent years. The recent emergence of the issue in the media initiated specific requests for reports from his office to Montana vets. So far in 2009, only two heartworm infections have been 'reported' and both dogs were brought into the state from high-incidence areas, Georgia and Missouri. He does report that a minor "hotspot" for heartworm has been documented in and around the Billings area. Despite that the American Heartworm Society tracks reported cases and in 2009 still reports significantly less than one incident per year, per clinic in Montana, Dr. Zaluski sees no harm in protective treatments.

Dr. Tia Nelson of Helena is suspect of what she considers unnecessary vaccinations/treatments and takes a holistic approach. "The immune system is a balanced web so each time we introduce a vaccine/treatment that web becomes out of balance, affecting the whole system not simply the specific treatment goal. The Ivermectin used to treat heartworms, as with many vaccines/treatments, has been implicated in hypothyroidism in treated dogs. In fact, by curtailing booster treatments, thyroid levels have been known to return to near normal." She recommends that people use preventative measures such as informing family when making plans to leave Montana and researching whether a destination has an incident of heartworm. Before departure, each time, test for heartworm, and if negative, plan to administer the tasty treat-like preventative nearing the end of the trip. Two to four weeks after returning, again treat the animal; this way, the dog shouldn't need a test until the following year. Please note that dogs that sleep outside with no protection are much more likely to become infected.

FWP's Research and Technical Service located in Bozeman could not confirm impacts to wild canids in Montana from heartworm due to a lack of definitive data.

Heartworms can be documented in wildlife and often found in post-mortem necropsy (autopsy) examinations but an examiner cannot determine from their presence whether the infection was the culprit in the death of the animal. Wild canids may not be a definitive host but sample sizes are often too small to determine any correlation of heartworm presence to reproductive viability or body condition. Parasites typically occur naturally in wildlife physiology, oftentimes without noticeable ill effect.

In early stages, heartworm is undetectable so the preventative treatment is often recommended for negative test animals. If a positive test returns, the treatment becomes much more intense. First the animal's heart, lung, and kidney functions must be evaluated to determine whether the dog can accommodate treatment, then usually an arsenic-based compound is administered; one month later another treatment to eliminate any residual microfilaria finishes the treatment. Care must be taken to keep the dog quiet or residuals of the dead worm may become lodged in the animal's lungs causing instant death. Some vets opt for a less invasive

regime of multiple inductions of Ivermectin, a preventative which has been proven to also kill adult heartworms possibly with fewer side effects than the arsenic based treatments.

Unlike vaccinations for bacterial or viral maladies (Parvo or Rabies) which can protect your animal for several years, the preventative treatment for heartworm only kills resident microfilaria so yearly bimonthly treatment is common practice by some Montana vets. Dr. Britt Culver, one of only two board certified internal medicine specialists in the state, contends that heartworm preventatives have been proven safe: "I choose to prevent heartworm in my dogs based on good medicine and the fear of heartworms and intestinal parasites; the preventative has the added benefit of killing most intestinal parasites, some of which cause illness in humans." Culver quotes a leading parasitologist at a national conference saying that "every dog in the US should be on a heartworm preventative" with concurrence from Colorado State and Washington State Universities as examples of a volume of "good science available".

Dr. Mark Albrecht, DVM, Small Animal surgeon and AAHA certified practice owner and MWF member said "The Companion Animal Parasite Council (CAPC) whose members include members of the CDC recommend all pets in the U.S. receive monthly parasite preventative (this would cover heartworm and other internal parasites). While the risk of heartworm disease is low in areas like Montana, it is a serious disease and the preventative also helps control other parasites which can pose some risk to humans. I have no problem with folks not using heartworm preventative – it's their choice but I do have a problem when they make that choice based on poor misinformation."

There are arguments on both sides of this issue. Increasing media attention has alerted many to the possibility of heartworm infections. How a dog owner decides to respond should include conversations with qualified experts. Simply considering drug-company advertisements on television should not be the deciding factor on whether or not to treat our companions; we owe them the best, responsible and effective care.

MWF thanks Dr. Marty Zaluski, Dr. Tia Nelson, Dr. Britt Culver, Dr. Mark Albrecht, FWP Research Lab in Bozeman, and the American Heartworm Society for their time and input.