

# TICK TALK

## **Fear Factor**

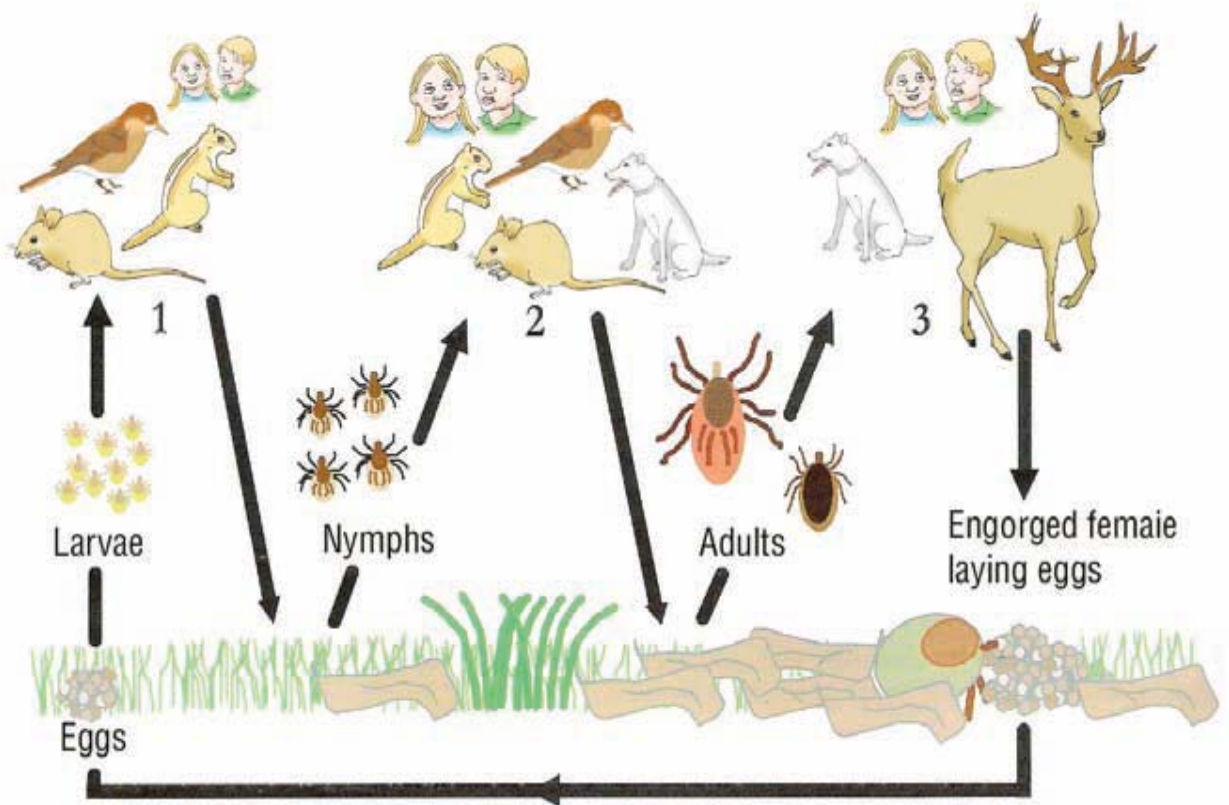
The poor lowly tick is on everyone's black list these days. Right up there (or down) with spiders and snakes unless, of course, you happen to be one of those geeky science kids with all manner of animal life and fauna in your bedroom. I was (sorry Mom). So why have we come to revile and fear the tick? Ticks are members of the arachnid family. You'll know this as the spider family. Remember the movie "Arachnophobia"? Now, that seems to be enough, right there, to send folks running and screaming. I have certainly heard, on the phone, and seen in the exam room the panic and disgust these little parasites induce in pet parents when they find them on their furry 'best' friends.

So, is our fear and loathing of ticks overblown and illogical? Does it stem from some deep caveman instinct that favoured survival? Maybe a little of both, but knowledge about ticks and their life cycle may help temper your fear and give you some idea how these little guys can, and cannot, affect us and our pets.

## **Vampires 101**

Ticks are hematophagus. That is to say, they feed on the blood of animals. They are vampires. Now, just a note on vampires in the animal world. They are almost exclusively female. It is almost universal, the females look for a blood meal and the males look for, surprise . . . sex. This is how nature works to perpetuate its' species. In actuality, that is only a partial truth since the male tick does feed somewhat on blood. It is this blood sucking tendency that creates problems because that is how disease can be spread by ticks.

The tick life cycle takes two or three years to complete. In brief, the female adult tick lays egg packets of up to 3,000 eggs. These hatch to larvae which feed on rodents, deer, and sometimes migratory birds. The larvae become nymph ticks that feed on those same hosts (including dogs and people) later that year or following spring. The nymphs then become adults that feed on the same hosts. These adults fall off when they are full and the females lay their egg packets and die. Then cycle begins again.



Some ticks species go “questing”. They like to climb up tall vertical surfaces like tall grass and trees, and hang out, waiting for a “host” to brush past. Their feet are super sticky, and so they simply grab on to a passing host by either sensing its’ carbon dioxide release or by “smelling” it. Then they crawl around on the host’s body, looking for just that right spot to suck some blood....

## Lyme Disease

Ok, so now you have had your biology lesson and you’re asking, “What’s the big deal?”. An ugly bug and a little blood letting. Less excitement than a B rated horror flick. The problem with ticks is something we biology nerds call vector-borne disease. These diseases are transmitted from one species to another via the feeding behaviour of the tick. That’s where Lyme disease comes into play. In this case, the black legged or deer tick’s life cycle involves taking a blood meal from those little mice and chipmunks. The tick gets infected from that host with a fancy little spirochete called *Borrelia burgdorferi* (flexing my microbiology muscles now). When, as an adult or a nymph, the tick feeds, it can transmit that infection to you or your pet. In some cases that infection becomes what we know as Lyme disease. The disease in our dogs can manifest as general malaise and sore joints, to high fever, swollen lymph nodes, lameness, and loss of appetite. If left untreated or treated too late, an infected dog can develop heart disease,

central nervous system disorders, or even fatal kidney disease. It can be hard to figure out and clinical signs may not show up for some time after the tick bite.



Because of fur and pigmented skin, it can be difficult to find ticks on our pets. Some dogs that test positive for Lyme disease have not had a history of having a tick found on them. A nymph (small and approximately the size of a poppy seed), and an adult stage (the size of a sesame seed prior to a blood meal) are shown above. You can see how hard they will be to detect on your pet. After a blood meal, the female can become larger than a cooked kernel of corn.

Lyme disease in humans in North America was first recognized in 1975 in Lyme, Connecticut. Before that it had an extensive history in European countries and continues to be a problem today. In the United States, there are nearly 25,000 reported cases of Lyme disease in humans yearly. In Canada the number is considerably less, amounting to about 100 cases per year.

In Canada the numbers are increasing in dogs, with most of the diagnosed cases found in Ontario, Manitoba, and Quebec. Passive surveillance in Quebec showed an increase in the number of deer ticks (the ones that carry Lyme disease) increasing from about 10 in 1996 to 1100 in 2006. In a 2007 national study, where dogs across the country were screened for Lyme disease, over 700 were positive for the organism compared to just over 300 positives the year prior. In Nova Scotia, that number was 34 positive cases in 2007 compared to 9 in 2006.

Out of 50 ticks submitted from Halifax to the National Microbiology Lab in Winnipeg in 2010, 10 tested positive for Lyme. Lyme is here and Lyme is on the increase.

### **Why Are They Spreading?**

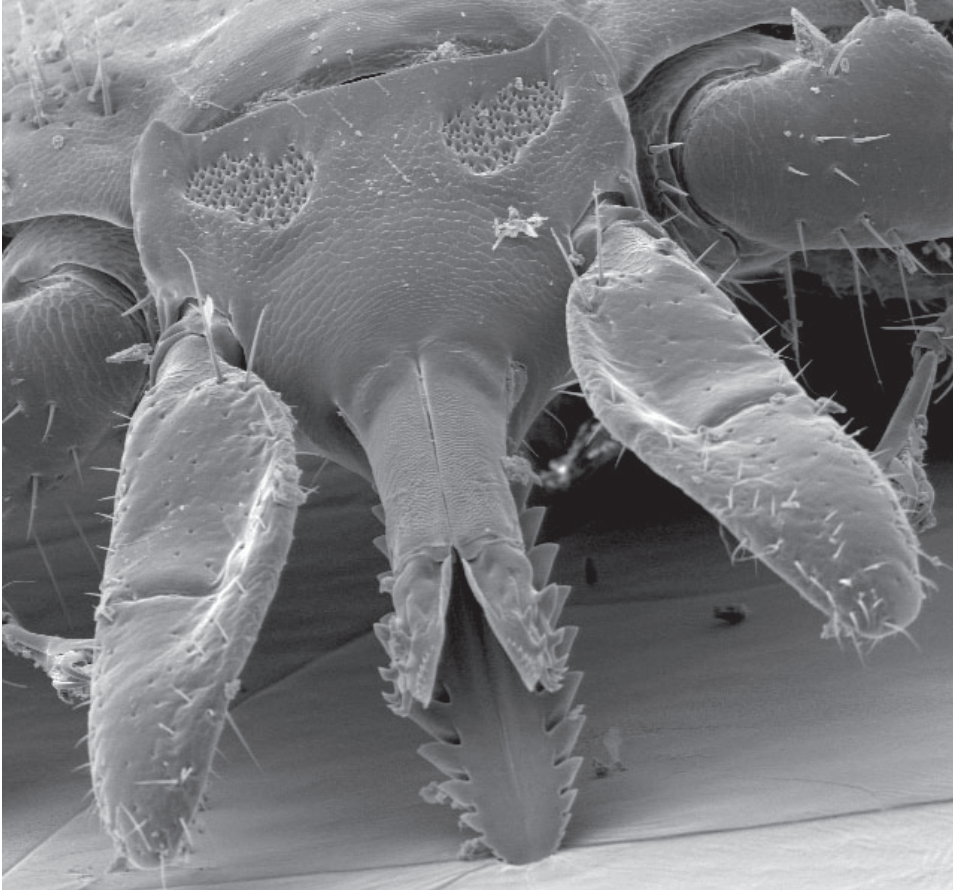
Climate change is a big factor. The risk of Lyme is, theoretically, during all the months without snow but the “population blooms” seem to occur in May/June and September/October. Climatologists are predicting a northern spread of the deer tick. By 2020, they predict that the deer tick and Lyme will be endemic throughout all of Nova Scotia. Everything about our climate is perfect for the spread of ticks in this province.

### **Prevention**

So how do we protect ourselves and our pets and, what should you do if you find a tick on your pet? Well, the good news is that there are some great products for prevention of ticks on your dog. The bad news is that no tick control product provides 100% efficacy against ticks. A product by Bayer called Advantix, which is applied to the dog’s skin once monthly, will kill ticks within hours of contact. It is NOT for cats (it’s TOXIC to cats) but cats seem to be rarely infested with ticks in our experience and, they don’t appear to get Lyme disease. Another product, called Preventix, is a collar that can be worn by the dog (again, not for cats). Similarly, it kills ticks within hours of contact. Ovitrol collars are similar but it does take a few days for it to ‘kick in’. Ovitrol collars are safe for cats. No product can kill ticks right away, and there can be a lag in between product applications, but these can help prevent Lyme. Your veterinarian can review the products that are available and make recommendations based on your risk.

For humans, covering up plus an application of good old DEET is used for repelling ticks but it needs to be applied frequently. This is not a good choice for dogs though. All that fur tends to be problematic and licking it off is not so good either.

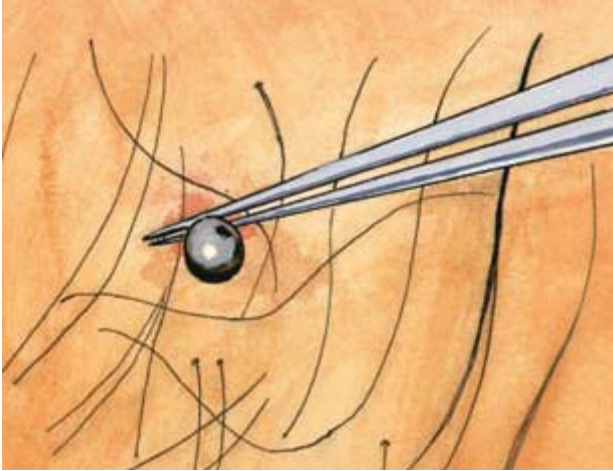
## Removing Ticks



Female tick  
mouth  
parts

If your pet is not on a preventative, then removing the tick is the best option. Put away the alcohol and the cigarette butt. They don't work and you might need the fire department! The female tick has a long snout or mouthpiece that she cuts into the skin with and then cements herself in place. It is recommended that the tick be removed by grabbing the tick as close to the skin as possible with a fine pair of tweezers and pulling slowly but steadily upwards to remove as much of the tick mouthpiece as possible (without twisting or rotating). Swab the area with alcohol afterwards.

Tick removal devices that have been shown to successfully remove deer tick nymphs include: Original Tick Kit (Tick Kit, Inc.), Pick-Tick (Encepur, Chiron), Pro-Tick Remedy (SCS, Ltd.), and the Tick Nipper (Josyln Designs, Inc.)



When removed, don't flick the tick back out into your backyard! This might allow the 1,000 to 3,000 baby ticks inside the female to take up residence there. Your best option would be to bring the tick into your veterinarian (inside an empty pill vial or sealed Ziplock baggie). They will send it to the Nova Scotia Agricultural College in Truro for further study. If removing the tick is just too icky for you, take your dog to your veterinarian. We are getting pretty good at this! Remember, the longer they stay on, the greater the chance of transmitting disease. Once you have checked out your dog, check yourself.

### **Surveillance**

Finally, and probably most important in these early stages of the spread of Lyme infected ticks in our province, have your pet tested and consider vaccination. A simple blood test can be performed at your veterinarian's office to screen for Lyme disease and two other vector-borne diseases (see how smart you are now!) and heartworm. We are recommending this for every dog. The only way we'll know what our risks and challenges are going to be is by testing. If your dog is positive for one of these diseases they can be treated and your veterinarian will advise you on proper treatment. They won't get treated if they are not diagnosed. And, no, you cannot get Lyme disease from your infected pet but you might be wise to contact your doctor if you have a Lyme positive pet since you have likely both been in the same area where your pet got infected.

For dogs at higher risk (those that spend a lot of time in wooded areas), we are also recommending a yearly Lyme vaccination. In addition to protecting dogs from Lyme, the vaccine has also been shown to kill Lyme in live ticks after feeding off of vaccinated dogs... which is pretty cool when you think about it.