

Most ticks in Saskatchewan are the American dog tick. Gross as they may be, they are incapable of carrying Lyme disease. There is one species rarely found in Saskatchewan that may carry the disease, the blackleg tick. Of the 16,000 ticks collected in 2008 only 41 of those were the blackleg tick and only 4 of those carried the disease. That's 1 in 4000 ticks and even then it's not guaranteed to pass the disease on to you. The Center for Disease Control and Prevention claims that a tick must be attached for 36 - 48 hours in order for a tick to transmit Lyme disease, so prompt removal of the tick is greatly important for mitigating the risk of infection.

Most humans are infected through the bites of immature ticks called nymphs. Nymphs are tiny (less than 2 mm) and difficult to see. They feed during the spring and summer months. Adult ticks can also transmit Lyme disease bacteria, but they are much larger and are more likely to be discovered and removed before they have had time to transmit the bacteria. Adult Ixodes ticks (deer/blackleg tick) are most active during the cooler months of the year. "The blackleg tick gets infected with Lyme disease by feeding on a host that has the disease. Newly hatched ticks are typically pathogen free however after feeding on hosts that have the disease they can then transmit it."



Tick Removal

Proper removal of ticks can mitigate the risk of contraction by reducing the amount of fluid transfer (back wash) from the parasite back to the host. Being aware of the symptoms of Lyme disease can help protect you and your family.

According to the Center for Disease Control and Prevention ticks should be removed by:

1. Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible.

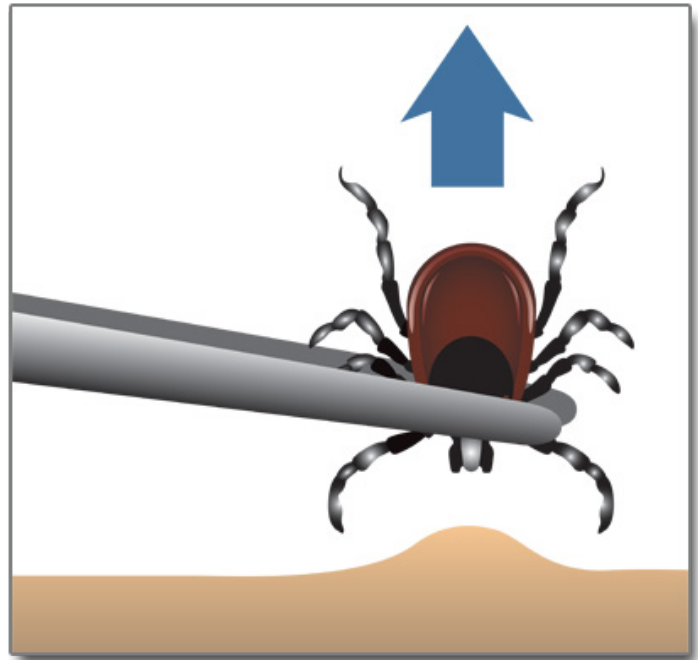
2. Pull upward with steady, even pressure. Don't twist or jerk the tick; this can cause the mouth-parts to break off and remain in the skin. If this happens, remove the mouth-parts with tweezers. If you are unable to remove the mouth easily with clean tweezers, leave it alone and let the skin heal.
3. After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol, an iodine scrub, or soap and water.
4. Dispose of a live tick by submersing it in alcohol, placing it in a sealed bag/container, wrapping it tightly in tape, or flushing it down the toilet. Never crush a tick with your fingers.
5. Follow-up - If you develop a rash or fever within several weeks of removing a tick, see your doctor. Be sure to tell the doctor about your recent tick bite, when the bite occurred, and where you most likely acquired the tick.

Do not use a match or a pin or try to stress the tick out to encourage them to back out of the wound. Your main focus is to remove the tick promptly, to remove all parts of the tick's body and to prevent it from releasing additional saliva or regurgitating its stomach contents into your bite wound.

Proper tick removal



To properly remove a tick you must grasp the tick as close to the skin's surface as possible and pull steadily upward with even pressure. Do not twist or jerk as this can cause the mouth parts of the tick to remain in the skin.



<http://awesomejelly.com/here-is-how-to-remove-a-tick-safely-from-pets-and-people/>

Feeding

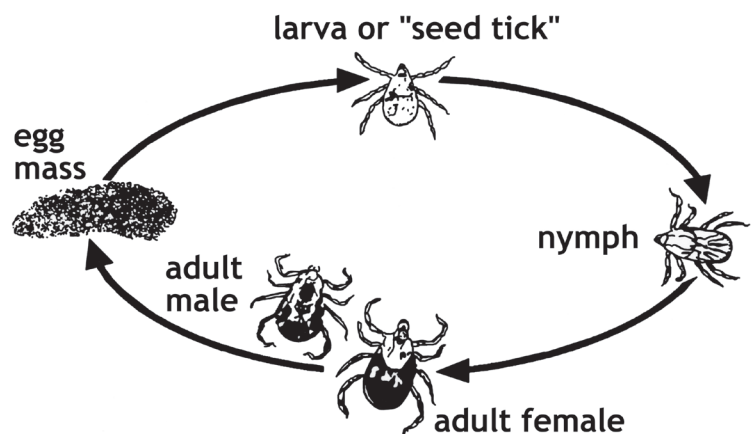
To find a host ticks hold onto leaves and grass by their lower legs and hold their upper pair of legs outstretched, waiting to climb onto a passing host in a process called questing. When a host brushes by it climbs on and searches suitable place to feed.

According to the Centres for Disease control and prevention when feeding, the tick makes a small incision in the skin of the host and inserts barbed piercing mouthparts to remove the blood. Most species cause little or no pain to their hosts at the time of feeding and some ticks saliva have anesthetic properties so that the host can't feel that the tick has attached itself. Many species also secrete a cement-like substance that keeps them firmly attached during the meal. A tick will suck the blood slowly for several days. If the host animal has a blood borne infection, the tick will ingest the pathogens with the blood. Small amounts of saliva from the tick may also enter the skin of the host animal during the feeding process. If the tick contains a pathogen, the organism may be transmitted to the host animal in this way.



Tick Life Cycle

The American dog tick has four developmental stages: egg, six-legged larva, one or more eight-legged nymphs and adult. After eggs hatch, larva can live for about 540 days without feeding. They then feed for 5 days usually on a rodent then drop off and molt into the eight legged nymph. The nymph can live for about 500 days without feeding and will eventually find a host usually a rodent to feed on for 3 to 11 days. The adults can survive 2 years without a feeding and are the ones people typically find on them. The adult female fully engorged falls off and can lay 3000 to 6000 eggs, the male continues to crawl around on the host looking for female to mate with occasionally feeding and can stay on the host indefinitely. The male does not engorge like the female. The tick lifecycle can last from 3 months to 3 years depending on climate and presence of hosts.



<http://extension.uga.edu/publications/detail.html?number=C937>

Tick Identification

Ticks can be submitted to the Biology Department of the University of Saskatchewan or to the Saskatchewan Disease Control Laboratory for identification.

Ticks should be placed in a hard container (not glass). Place moistened tissue paper, paper towel, gauze or cotton in the collection container to protect the specimen and to maintain any ticks that are alive during transport.



Top photo: Dog tick under microscope, bottom photo Dog tick nymphs under microscope
photos by Dr. Tyler Wist, Agriculture and Agri-Food Canada

Mail the container along with a completed Tick Submission Form available at www.saskatchewan.ca/residents/health/diseases-and-conditions/lyme-disease

Chilton Parasitology Laboratory, Biology Department
Rm. 310, Biology Building
University of Saskatchewan
112 Science Place
SASKATOON SK S7N 5E2

or
Saskatchewan Disease Control Laboratory
5 Research Drive
REGINA SK S4S 0A4

Tick Control

The Centers for Disease Control and Prevention says, "The blacklegged tick is found mainly in densely wooded areas (67% of total sampled) and ecotone (22%), which is unmaintained transitional edge habitat between woodlands and open areas. Fewer ticks are found in ornamental vegetation (9%) and lawn (2%). Within the lawn, most of the ticks (82%) are located within 3 yards of the lawn perimeter particularly along woodlands, stonewalls, or ornamental plantings." The best option is to avoid these areas whenever possible.

When in areas where one could contact tick wear light-colored clothing with long pants tucked into socks to make ticks easier to detect and keep them on the outside of the clothes and use a repellent containing DEET or permethrin. Do not wear open-toed shoes or sandals. When possible keep to the center of trails or in shorter grass and minimize contact with adjacent brush. Once home remove clothing and check for ticks. Then put in the cloths in the drier for 1 hour. Ticks can live for several days in your home and can survive being washed. If you hang your cloths to dry inspect them before putting them away.

Check pets for ticks and brush them when they come in from outside over a light colored area so you can find the ticks. There are many treatments available from your veterinarian for tick control on your pets.

Ticks require high humidity to survive. In lab tests at 65% humidity half died in 4 days but at 95% humidity they lived greater than 6 months. Keep that in mind when developing your landscape allowing for sunlight to enter your yard and good airflow to help reduce humidity.

At home clear tall grasses, brush and leaf litter from higher traffic areas in your yard and discourage animals from entering like deer, dogs, rodents, which can feed the ticks. Remember that each engorged female can have 3000-6000 offspring which would end up in your yard.

For chemical control of ticks see the publication

www.ct.gov/caes/lib/caes/documents/special_features/tick-handbook.pdf

The reference document is 75 pages long and full of useful information. Always follow the label recommendations and some of these products can only be used by someone with a pesticide applicators license. Keep in mind that when spraying for ticks other non target organisms will be affected and should only be sprayed as a last resort.



Lyme Disease Recognition

Untreated Lyme disease can produce a wide range of symptoms, depending on the stage of infection. These include fever, rash, facial paralysis, and arthritis. Seek medical attention if you observe any of these symptoms and have had a tick bite, live in an area known for Lyme disease, or have recently traveled to an area where Lyme disease occurs.”

Early Signs and Symptoms (3 to 30 days after tick bite)

- Fever, chills, headache, fatigue, muscle and joint aches, and swollen lymph nodes
- Erythema migrans (EM) rash:
 - Occurs in approximately 70 to 80 percent of infected persons
 - Begins at the site of a tick bite after a delay of 3 to 30 days (average is about 7 days)
 - Expands gradually over a period of days reaching up to 12 inches or more (30 cm) across
 - May feel warm to the touch but is rarely itchy or painful
 - Sometimes clears as it enlarges, resulting in a target or “bull’s-eye” appearance
 - May appear on any area of the body

Later Signs and Symptoms (days to months after tick bite)

- Severe headaches and neck stiffness
- Additional EM rashes on other areas of the body
- Arthritis with severe joint pain and swelling, particularly the knees and other large joints.
- Facial palsy (loss of muscle tone or droop on one or both sides of the face)
- Intermittent pain in tendons, muscles, joints, and bones
- Heart palpitations or an irregular heart beat (Lyme carditis)
- Episodes of dizziness or shortness of breath
- Inflammation of the brain and spinal cord
- Nerve pain
- Shooting pains, numbness, or tingling in the hands or feet
- Problems with short-term memory



“Classic” Erythema migrans (EM) rash



Facial Palsy



Swollen Knee

Sources:

<https://www.cdc.gov/>

<https://www.lymedisease.org/>

Ticks and Tick-Borne Diseases in North Carolina (publication AG-428)