

Nebraska Ticks: Identification and Prevention

[345]

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Ticks can be active all year round, but May/June is regarded as high tick season in Nebraska. An increase in outdoor activities such as trail running, hiking, camping and more mushroom hunting take place in prime tick habitat.

Ticks are blood feeders and have the potential to vector some serious diseases of both people and pets. The two most common ticks found in eastern Nebraska this time of year are the American dog tick, *Dermacentor variabilis*, and the lone star tick, *Amblyomma americanum*.

Identification

Ticks have two body parts and eight legs (larvae or “seed ticks” have six) and require a blood meal to develop from larva to nymph, nymph to adult and produce eggs. Tick species can be distinguished from one another by the size of the mouthparts and the pattern or markings on the scutum, which is the area located behind the tick’s head. The male’s scutum covers the entire body, whereas the female has a small scutum.

American dog ticks are found in areas with little or no tree cover, such as grassy fields, along roads, walkways and trails. They have short mouthparts and an ornate scutum.

Lone star ticks are found in woodland areas with dense undergrowth. The adult female has a single white spot on her scutum, which can be seen when engorged. They have long mouthparts.

Ticks found in Nebraska are three-host ticks, which means they require a different host for each stage. The entire life cycle may take up to two years to



Female American dog tick, engorged (magnified)



Female lone star tick, engorged (magnified)

Photos: Jim Kalisch, UNL Department of Entomology

complete. The biggest risks for tick-borne disease comes in May through August. Ticks find their hosts by waiting patiently with their front legs extended at host-height, which is the ground for small rodents and knee height for larger mammals such as deer, dogs and humans. When an unsuspecting host brushes against the claws of a questing tick, the tick hangs on and begins to crawl upward. Contrary to popular belief, ticks do not jump or fall onto hosts from above.

Once a tick has found a host, it cuts the skin with its saw-like mouthparts and drives a rigid feeding apparatus with backwards spines deep into the skin. This securely anchors the tick in place while feeding. Ticks have the ability to feed and remain embedded for several days (7–10) if undisturbed. The longer the tick remains attached, the more likely it will transmit pathogens,

if infected. Scientists believe that no infection will occur if the tick is removed within 24 hours.

Prevention

It is important to prevent and remove ticks before they get a chance to transmit disease. Here are some actions you can take to protect yourself.

- Wear long pants, tucked into white socks for quick detection and removal.
- Perform regular, full body, tick checks on your person and children, and if possible, shower within two hours of coming in from outdoors. On people, American dog ticks are most often found on the head and around the ears. In addition to these areas, lone star ticks can be found under armpits, around waist, behind knee and in groin area.
- Put outdoor clothes in the dryer on high for 30 minutes to kill ticks on clothing. Ticks will survive the wash cycle and can easily escape the laundry hamper and seek out a host.
- Designate clothing for your outdoor excursions and treat clothing and shoes with a permethrin clothing spray, which can repel ticks for up to six washings.
- Purchase pre-treated clothing designed to repel insects that can last through 70+ washes.
- Protect your pets using a tick prevention program through your veterinarian.
- If your dog is on a flea and tick program, continue to perform regular tick checks. Ticks are most often found on the dog’s head, in and around the ears, neck, armpits and between the toes. Use pointy tweezers to remove

Continued on next page

them, collect and discard ticks in a way they cannot escape.

- Remove embedded ticks as soon as possible using pointy tweezers, grasping the tick as close to the skin's surface and pulling straight out. After removing the tick, disinfect affected skin with rubbing alcohol and keep tick for identification. There are various methods and devices available, but this is the best method.
- Understand the limitations of DEET repellents against ticks when applied to



Female American dog tick being removed with tweezers.

skin. Products with higher percentages of DEET will protect for a longer period of time, but anything over 30 percent does not offer greater protection and is unnecessary.

Tick-borne Illnesses

Until recently, Nebraska did not have established populations of black-legged tick (*Ixodes scapularis*), and past cases of Lyme disease were considered rare and attributed to ticks from out of the state, either by traveling people or wildlife. As

of 2022, state health officials have identified established populations in Douglas, Sarpy, Saunders and Thurston counties. It is now important for Nebraskans to understand Lyme disease and how to avoid acquiring it.

Early signs of Lyme disease and STARI (transmitted by the lone star tick) are indistinguishable, so it is a good idea to keep ticks that have been removed for identification. If symptoms occur, work with a physician and begin treatment of oral antibiotics such as doxycycline. For any symptoms lasting after the course of antibiotics, contact an infectious disease specialist.

Tick	Distribution	Associated Illness and Infectious Agent	Symptoms of Illness
American dog tick <i>Dermacentor variabilis</i>	Found statewide throughout Nebraska	Rocky Mountain spotted fever (RMSF) Bacteria: <i>Rickettsia rickettsii</i>	Fever and/or red spotty rash beginning at wrist and ankles then spreading to trunk. Can begin 2–5 days after onset of fever. Some never develop rash. Treat with antibiotics in first few days of symptoms.
		Tularemia Bacteria: <i>Francisella tularensis</i>	High fever and/or skin ulcer at site of bite. Ulcer accompanied by swelling of regional lymph glands in armpit or groin. Treat with antibiotics in first few days of symptoms.
Lone star tick <i>Amblyomma americanum</i>	Found in eastern, southern, and central Nebraska	Human ehrlichiosis Bacteria: <i>Ehrlichia chaffeensis</i>	Fever, headache, fatigue, muscle aches 1–2 weeks following tick bite. Treat with antibiotics in first few days of symptoms.
		Southern tick-associated rash illness (STARI) Agent unknown	Rash nearly identical to Lyme with the expanding “bulls eye” lesion around the tick bite within 7 days. Treat with antibiotics in first few days of symptoms.
		Tularemia Bacteria: <i>Francisella tularensis</i>	High fever and/or skin ulcer at site of bite. Ulcer accompanied by swelling of regional lymph glands in armpit or groin. Treat with antibiotics in first few days of symptoms.
		Heartland virus Virus: Phlebovirus	Fever, fatigue, drop in white blood cells and platelets. Rare virus with no test or treatment.
		Alpha-gal allergy or red meat allergy	Can present as hives, skin rash, stomach cramps, sneezing, headaches, asthma and/or anaphylaxis reaction after eating red meat. Must avoid meat trigger.
Black-legged tick <i>Ixodes scapularis</i>	Found (established) in Douglas, Sarpy, Saunders and Thurston counties.	Lyme disease Bacteria: <i>Borrelia burgdorferi</i>	Fever, headache, fatigue, rash nearly identical to STARI with expanding “bulls eye” lesion around tick bite. Can begin 3–30 days after bite. Treated with antibiotics in first few days of symptoms. If left untreated, infection can spread to joints, heart and nervous system.