

National Pest Alert



Ticks and Tick-Borne Diseases

Ticks and tick-borne diseases (TBD) pose a major public health concern nationally. Eleven of the seventeen tick-borne diseases in the U.S. are known to infect humans. Lyme disease accounts for over 90% of all reported human vector-borne disease, with an estimated 300,000 cases annually. TBDs are most often spread by the bite of ticks.

Tick Life Cycle

Most tick life cycles include four stages: egg, six-legged larva, eight-legged nymph and adult. Each life stage varies in size and color for each tick species. Ticks need a blood meal at every life stage after hatching to survive and grow. Ticks can feed on mammals, birds, reptiles, and amphibians. Most ticks prefer a different host animal at each life stage. Ticks are most active in the spring, summer and fall, however, the adults of some species are active in the winter.

The Spread of Disease

Most ticks wait passively on vegetation for host animals to move by. If a host passes by close enough, the tick will latch on. Ticks spread germs that cause disease through the process of feeding:

- Once the tick finds a feeding spot, it grasps the skin and cuts into the surface.
- The tick inserts its feeding tube to suck blood slowly for several days. If the host animal has a TBD, the tick will ingest the germs with the blood.
- Large amounts of saliva from the tick enters the skin of the host animal during the feeding process. If the tick is carrying germs that will cause a TBD, the germs may be passed on to the host animal in the tick's saliva.
- Usually, ticks have to be feeding for several hours before any infections are spread to the host. This timeframe varies by tick species and the type of germ. An infectious dose of the Lyme disease germ can be passed on usually after 24 hours whereas the Rocky Mountain spotted fever germ can be spread as soon as 4–6 hours and Powassan encephalitis virus can be passed on in as little as fifteen minutes after tick attachment.
- After feeding, most ticks will drop off and prepare for the next life stage. At its next feeding, a tick that picked up germs in a blood meal can then spread disease to a new host.

Tick Life Cycle

Species	Larva	Nymph	Male	Female	Partially Fed Female	Fully Fed Female
Blacklegged Tick <i>Ixodes scapularis</i>						
Dog Tick <i>Dermacentor variabilis</i>						
Lone Star Tick <i>Amblyomma americanum</i>						
Brown Dog Tick <i>Rhipicephalus sanguineus</i>						

TickEncounter Resource Center, www.tickencounter.org/tick_identification

Tick-borne Disease Symptoms

Many TBDs share symptoms. The most common symptoms of tick-related illnesses are:

- Fever/chills
- Severe headache
- Muscle and joint pain
- Nausea
- Cognitive defects
- Sleep disturbances
- Rash

Tick-borne Disease Prevention

Ticks dry out in heat and thrive in damp, humid environments. Yard care practices including removing leaf litter and mowing the lawn can help reduce tick habitat. Keeping children's play areas away from wooded edges, and moving to areas with short grass and sunshine reduce the chances of a tick encounter.

Personal protection strategies to reduce the chances of coming in contact with ticks include avoiding

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