



# VARMET GUARD®

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Common Name: **Blacklegged tick / deer tick**  
Scientific Name: ***Ixodes scapularis***

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## BLACKLEGGED TICK / DEER TICK

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**Introduction.** The common name blacklegged tick refers to their dark legs which are in contrast to the paler body and that of deer tick because the preferred adult host is the white tailed deer. This tick is of medical importance because it is an important vector of Lyme disease. Blacklegged ticks are found primarily in the Northeastern, Midwestern and southeastern states in the United States, but extend into Mexico. In Ohio it is most common in the outermost counties.

**Recognition.** The unengorged female tick is about 1/8 inch long, while the male is smaller about 1/16 inch long. The flat oval body is colored orange-brown to reddish-brown and the legs are dark reddish-brown to black in color.

**Biology.** Although the life cycle (egg to egg) can be completed in 2 years in nature, it may be extended to 4 years if hosts are scarce. Adult ticks feed during the winter primarily on the white tailed deer. Here they mate, with the male dying shortly after mating and the female remaining on the host. In the spring, the female drops off the host and deposits about 3,000 eggs. The 6-legged larvae hatch out in several weeks (48 to 135 days) and can be found June through September. They feed for 3 to 9 days but only once, usually on small mammals such as mice, chipmunks, voles, etc.; but the preferred larval host is the white footed mouse and deer mouse. Larvae feed before September, molt promptly and overwinter as 8-legged nymphs; those which feed later, overwinter engorged and molt into nymphs the following spring. Nymphs feed for 3 to 8 days but only once during the summer, usually on mice or larger mammals such as squirrels, raccoons, opossums, skunks, dogs, and humans, or on birds. Nymphs can be found from April through August, with the population usually peaking in June or

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July. These fed nymphs then require 25 to 56 days to molt into adults in the autumn. The adults attach primarily to the white-tailed deer, engorge and mate.

The male dies after mating but the female continues to feed until egg development is completed and remains on the deer until spring when she drops off to lay eggs. Shortly after her eggs are laid, the female dies.

If adults do not feed during their first season (summer), most die off but they can survive through 2 seasons (May through August of the next year); they develop into adults in the same year in which they feed. Unfed larvae survive less than one year, they usually survive the winter but die during the following year.

Lyme disease is caused by the spirochete, *Borrelia burgdorferi* which is a corkscrew-shaped bacteria. Its primary wild reservoirs are the white-footed mouse and deer mouse which are infected by the spring-feeding, pathogen-infected blacklegged / deer tick nymphs. These mice then serve to infest the later feeding blacklegged/deer tick larvae, which perpetuates the disease cycle.

Tick eggs don't contain the spirochetes; they are acquired via feeding.

It is the pathogen-infected blacklegged/deer tick nymphs, which are most active in mid-summer (May-July) and use a wide variety of hosts, that are primarily responsible for Lyme disease in humans in the northeast and Midwest. Larvae and nymphs have been collected on 29 species of mammals in 7 orders, and from 49 species of birds (23 species being migratory birds) in 17 different families.

**Habits.** Blacklegged / deer ticks climb the grass and shrubs to wait for a passing host, and move very laterally. They concentrate on such vegetation located in transitional zones such as where forest meets field, mowed lawn meets unmowed fence line, borders of foot paths and animal trails through high grass or forest, etc. Because these transitional areas or edge habitats are where most animals travel sometime each 24-hour period, this is where the ticks are most likely to acquire a host.

The other habitats most likely to harbor ticks are the dens, nests or burrows of host animals, such as skunks, raccoons, opossums, and especially white-footed and deer mice. These brown and white mice prefer woody or brushy areas. They nest below ground, beneath logs, wood debris and woodpiles, in stumps, old nests of birds and squirrels, and in undisturbed areas of buildings.



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A favorable feeding area for these ticks on humans is at the back of the neck, at the base of the skull; long hair makes detection more difficult. However, the ticks will usually wander for about 4 hours or so before they attach. Then, a tick has to be attached for a period of 6 to 8 hours before a successful transmission of the Lyme disease pathogen can take place.

**Control.** The reduction of these ticks is a multi-step process. The first 2 steps are sanitation and personal protection, which are the responsibility of the homeowner or occupant(s):

### **Cultural Control & Preventative Measures**

1. Sanitation, consists of the following: (a) keep grass cut low including around fence lines, sheds, trees, shrubs, swing sets and other difficult to cut locations; (b) remove weeds, woodpiles and other debris which are attractive to mice as nesting sites, and leaf litter which is attractive to ticks, especially the nymphs; (c) keep garbage can lids on tight to discourage opossums, raccoons and skunks from coming into the yard to raid garbage cans for food because these animals all harbor the ticks which transmit the Lyme disease pathogen; (d) discourage messy methods of feeding birds because seed on the ground attract deer mice, the major reservoir host of the Lyme disease pathogen; and (e) install chimney and attic vent screening to keep squirrels, raccoons and birds out of the house.

2. Personal protection consists of: (a) insect repellents that contain deet or permethrin; (b) tucking pants into socks or boots when going into suspect areas; (c) checking children for ticks when they come into the house because it takes about 4 hours for the tick to start feeding; (d) wearing light colored clothing which makes spotting ticks easier; (e) carefully examining pets which go outdoors because they may increase the chances of blacklegged tick exposure; especially cats; and (f) having a veterinarian perform a blood test on pets that go outdoors to determine if they are carrying the Lyme disease spirochete.

### **Professional Control.**

1. A Varmant Guard technician will treat the exterior perimeter of the structure or the entire property with an appropriately labeled residual pesticide if ticks are present.

2. The technician may perform an exterior perimeter rodent control program to reduce the host populations for this tick.

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**Lyme disease.** The symptoms are usually divided into 3 stages, and they mimic several commonly occurring diseases.

Symptoms: Spreading rash, fever, flu-like symptoms and aches

**Stage 1:** expanding rash (erythema migrans or EM rashes) occurs 3 to 30 days after the tick bite.

- Ringlike or bullseye appearance to rash
- One or more rash sites
- May or may not have flu-like symptoms
- May come and go or persist

**Stage 2:** Complications or disorders of the heart or nervous system

- Heart. Varying degrees of blockage of the heart muscle.
- Nervous system. Meningitis, encephalitis, facial paralysis
- “Bell’s palsy” and other conditions involving peripheral nerves.
- Migratory pain in joints, tendons, muscles, and bones, often without joint swelling or redness.

**Stage 3:** Months to years after disease onset.

- Arthritis that appears and disappears intermittently for several years.
- Enlarged knee joints.
- Erosion of cartilage and bone.

#### **Medical treatment notes:**

1. Once bitten by a blacklegged / deer tick that possesses the spirochete, antibodies may not be produced in the victim for up to 6 weeks. Therefore, it takes time to verify that one has Lyme disease.

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2. Oral medications for Lyme disease can destroy the spirochetes in the blood and give an antibody reading that the person is “cured”. However, the spirochete may persist in the brain and reappear in the person 5 to 10 years later. Therefore, intravenous treatment is advised over oral medications by some physicians considered experts in this area, especially for persons showing stage 2 or stage 3 symptoms.

### **Tick removal:**

1. The best way to remove a tick found attached to a person or pet is to firmly grasp it with a pair of fine-tip tweezers as close to the skin as possible.
2. Pull firmly but gently backwards until the tick pulls free.
3. Do not touch the tick, but save it in rubbing alcohol for later identification.