

## WHAT TO DO IF YOU THINK YOU HAVE LYME DISEASE

Early recognition of Lyme disease is important. If you have found a tick attached to your skin or if you were in an area where ticks are known to occur and if you have any of the symptoms listed in this leaflet, tell your physician immediately of your suspicions. This information, together with a blood test, will help your physician make a diagnosis. Treatment with antibiotics during the early stages can cure the infection and prevent complications associated with stages 2 and 3. Antibiotic treatment of the later stages of Lyme disease is often, but not always, successful.

Additional information of Lyme disease can be obtained from your local health agency named in the box below, or by contacting:

**California Department of Health Services**  
2151 Berkeley Way  
Berkeley, CA 94704

**Infectious Diseases Branch**  
(415) 540-2566

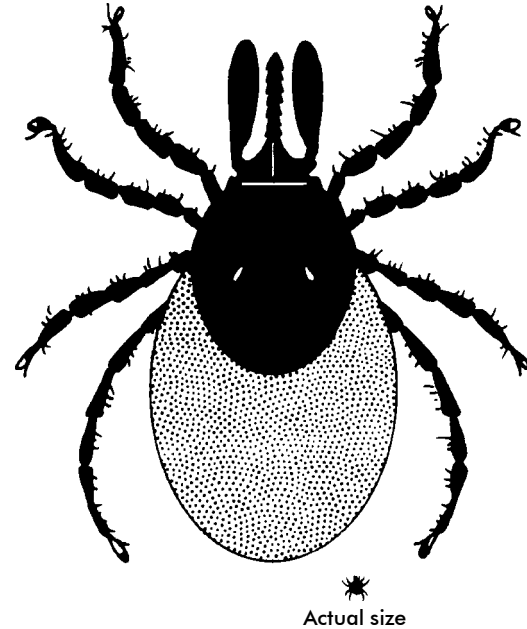
**Vector Surveillance and Control Branch**  
(415) 540-2356

**Kern County Health Department  
Disease Control  
(661) 868-0510**

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Local Agency

# Facts about LYME DISEASE in California



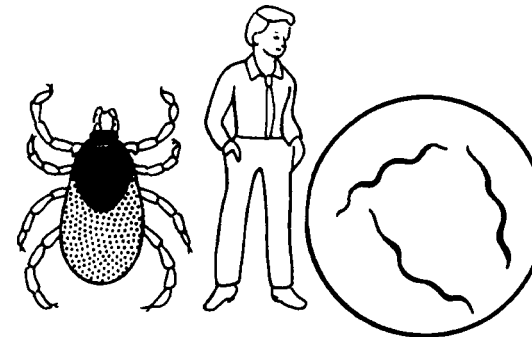
**WESTERN BLACK-LEGGED TICK**

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Department of Health Services  
Vector Surveillance and Control Branch**

## LYME DISEASE

Lyme disease is an infectious disease transmitted by the bite of a tick. It is caused by a spirochete (a spiral-shaped bacterium) that may persist in the human body for several years if not properly treated with antibiotics. The natural history of this disease is not completely understood and the illness it produces takes many forms. Because of varied symptoms, diagnosis can be difficult. This newly recognized disease was first noted in 1975 at Old Lyme, Connecticut, and was first seen in California in 1978.

Lyme disease is now recognized as an important tick-borne disease throughout the northeastern USA from Massachusetts to Delaware; in the midwest in Minnesota and Wisconsin; in some southeastern states; and in the west in California, Oregon, and Nevada, as well as in many European countries.



**Western Black-legged Tick  
*Ixodes pacificus*  
(x10)**

**Lyme disease spirochetes  
*Borrelia burgdorferi*  
(x2000)**

The purpose of this leaflet is to alert and inform the public of the occurrence of this emerging disease in California, and to provide information on how individuals can protect themselves.

## SYMPTOMS

Early symptoms include a characteristic spreading rash accompanied by flu-like symptoms, fever, and aches. Possible complications in the heart and/or nervous system may occur as well as severe arthritic. The disease commonly has these three stages:

### Stage 1

The first recognizable symptom usually is a characteristic rash, known as erythema chronicum migrans (ECM), that occurs 3 to 30 days after the bite of an infected tick. ECM is a red, blotchy, circular, expanding rash that may grow to several inches in diameter and clears centrally, producing a ring-like appearance. One or more ECM lesions may occur, not necessarily at the tick bite site. ECM may be preceded or accompanied by flu-like symptoms. These symptoms may persist, change, disappear and reappear intermittently for several weeks.

### Stage 2

Some infected persons may develop long-term complications weeks to months after the initial symptoms. These complications may include disorders of the heart or nervous system. Abnormalities of the heart include varying degrees of blockage of the heart muscles. Nervous system abnormalities include meningitis, encephalitis, facial paralysis (Bell's palsy) and other conditions involving peripheral nerves. During this stage, patients may experience migratory pain in joints, tendons, muscles, and bones, often without joint swelling or redness.

### Stage 3

Months to years after disease onset, patients may develop arthritis that appears and disappears intermittently for several years. Arthritis is the most common long-term symptom of Lyme disease. Large joints, especially the knees, are most often affected. Lyme arthritis may become chronic, with erosion of cartilage and bone.

## THE VECTOR OF LYME DISEASE IN CALIFORNIA

The Western Black-legged Tick (*Ixodes pacificus*) is the only tick of the 49 species occurring in California that is known to transmit Lyme disease. The spirochete causing Lyme disease was first isolated from this tick in 1984.

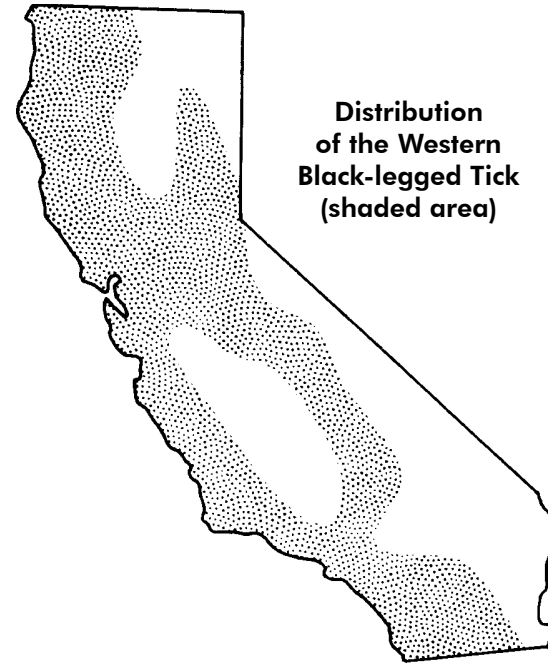
The tick has three active life stages: Immature stages (larvae and nymphs) feed on small rodents, rabbits, lizards, birds, and occasionally large mammals. Adults feed on large mammals, including deer, dogs, and humans. All stages feed by imbedding their mouthparts into the skin of a host and taking a blood meal.

Preliminary studies show that white-footed mice and deer may be the primary reservoirs of Lyme disease in California. Larval and nymphal ticks acquire spirochetes from the blood of infected mammals as they feed; the infected nymphs and adults transmit the spirochetes to other mammals (including

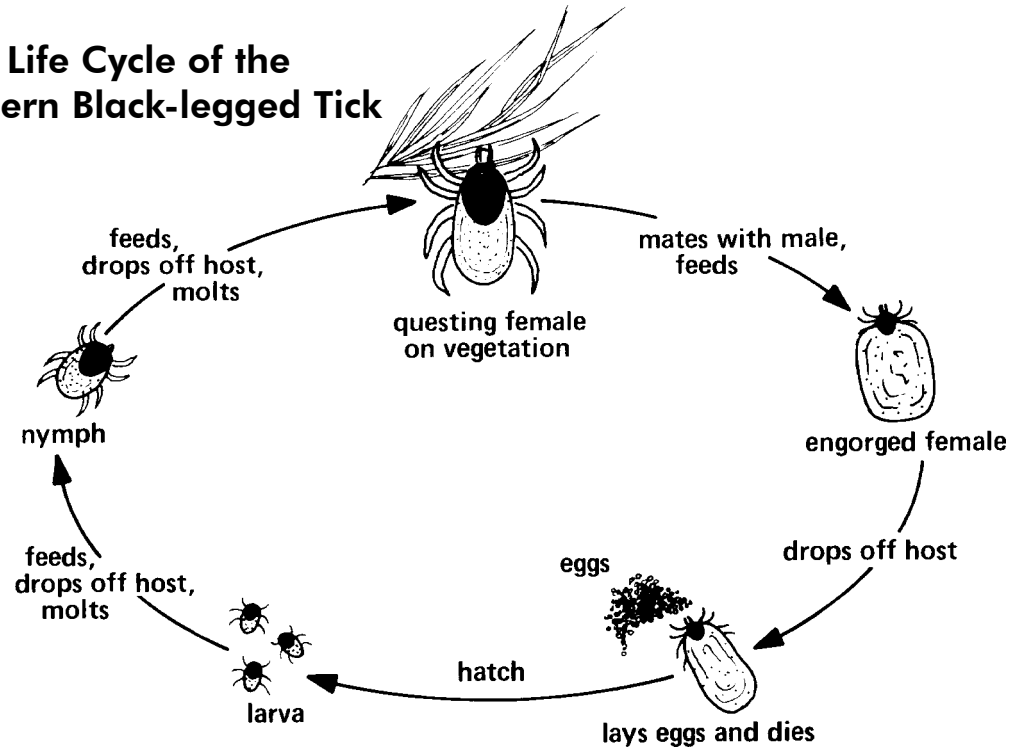
humans). In California a low percentage of the ticks tested are infected with the Lyme disease spirochete.

Adult ticks are most commonly found from December through June, during the period of the year when humidity is usually high. The adult female is red-brown with black legs, about 1/8 of an inch long; males are smaller and entirely brownish-black. Both are teardrop shaped. While the Western Black-legged Tick has been reported from 0 of the 58 California counties, it is most common in the humid coastal areas and on the western slope of the Sierra Nevada range.

This tick can be found on grasses and brush in both urban and rural settings. Ticks do not fly, jump, or drop from trees. Instead they climb to the tips of vegetations, typically along animal trails or paths, and wait for a host to brush against them. This behavioral method of finding a host is called questing.



### Life Cycle of the Western Black-legged Tick



## TICK AVOIDANCE

### Personal

- Tuck pants into boots or socks, and shirt into pants.
- Wear light-colored clothing so ticks can easily be seen.
- Apply insect repellent on pants, socks, and shoes. Use a repellent registered for use against ticks.
- Avoid trail margins, brush, and grassy areas when in tick country.
- Check yourself and your children frequently.

### Environmental

- Mow grass along trails, buildings, and camping areas.
- Remove brush along trails or other areas of high human activity.
- Areas application of insecticides is *not* effective for tick control.

## REMOVAL OF ATTACHED TICKS

Prompt removal of ticks may prevent disease transmission.

1. If possible, have someone else remove the tick from you.
2. Use tweezers or forceps rather than your fingers.
3. If you must touch the tick, use a tissue to protect your hand.

If ticks are crushed or squeezed with fingers, exposure to body fluids may lead to transmission of Lyme or other disease agents.

4. Grasp the tick's mouthparts as close to the skin as possible.
5. Gently pull the tick straight out, steadily and firmly. *Do not* twist or jerk the tick.

Tick mouthparts have harpoon-like barbs; they do not screw into the skin.

6. If mouthparts of the tick break off and remain in your skin, consult your physician.
7. Dispose of tick in alcohol or by flushing it down the toilet.
8. Wash hands and bite site with soap and water. Apply antiseptic to bite site.
9. Use same procedures and precautions when removing ticks from pets.