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# Lyme Disease: Incidence and Prevention, With Emphasis on Wildlife Biologists

Robert M. Timor  
*University of California*

Robert S. Lane  
*University of California*

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Lyme Disease: Incidence and Prevention, With Emphasis  
on Wildlife Biologists

Robert M. Timor

Robert S. Lane

University of California

ABSTRACT

Lyme disease, a potentially debilitating illness in humans if untreated, is caused by the spirochete Borrelia burgdorferi. First recognized in the mid-1970s in Lyme, Connecticut, the disease has been reported in at least 46 of the United States and in Canada, Australia, Asia, and Europe.

This disease is primarily transmitted to humans by tick bite. In *California*, the tick believed primarily responsible is the western black-legged tick, Ixodes pacificus. In the upper midwestern and northeastern states, the usual vector is Ixodes scapularis (formerly I. ammini in part).

Other potential modes of transmission to humans include horseflies, deerflies, and mosquitoes, which have been implicated as potential secondary vectors of B. burgdorferi in Europe and the northeastern United States. Of greater concern to wildlife biologists is the potential for direct contact transmission, which may occur through unbroken skin when humans are exposed to the tissues or bodily fluids of infected animals. In northern California, spirochetes tentatively identified as B. burgdorferi have been detected in blood of native Columbian black-tailed deer (Odocoileus hemionus columbianus) in the late fall and winter, as well as in

introduced axis and fallow deer. In the northeastern United States, direct contact transmission has been reported from infected to uninfected white-footed mice (Peromyscus leucopus), and spirochetes have been detected in the urine of naturally infected L. leucopus.

People appear to be at most risk in spring and summer, when nymphal ticks are most abundant. Wildlife biologists who spend significant time out-of-doors are at higher risk than most other segments of the population. The best means of preventing the disease is to avoid tick bites. Common precautions include wearing appropriate dress when out-of-doors, avoiding vegetation and leaf litter where ticks may be seeking hosts, using registered tick repellents, and checking yourself for ticks frequently and thoroughly following field work.

Common antibiotics will usually cure Lyme disease if given within the first few weeks of infection. If treatment is delayed, however, the disease can lead to arthritic, cardiac, or neurological problems weeks or months later, and may become much more difficult to cure.

