



# Lyme Disease & Deer

## Revelation or Red Herring

- The black-legged tick (*Ixodes scapularis*) is the most important vector for Lyme disease transmission in the Eastern US. It has a 2-year life cycle consisting of 3 life stages: larval, nymph, and adult.
- Risk of exposure to Lyme disease is correlated with abundance of acorns, mice, and chipmunks – key hosts for subadult ticks and their corresponding food source.
- Deer are a dead-end host for the Lyme disease bacteria. They do not infect ticks with the bacteria that cause Lyme disease nor do they contract the disease when an infected tick feeds on them. They play no direct role in the transmission cycle.
- Adult ticks primarily feed on deer in mid-autumn to mate and acquire a final blood meal before females lay eggs to complete their life cycle.
- Larvae feed on mice, birds, and other small mammals in the summer and early fall. Nymphs also feed on mice, birds, and other small mammals but are most active in the late spring and early summer.
- Tick populations are not affected by deer abundance unless deer are eradicated or severely reduced.
- The density of ticks is more sensitive to the availability of hosts for subadult ticks (small mammals and birds) than hosts for adult ticks.
- Woodland rodents carrying the bacteria that cause Lyme disease, especially white-footed mice and eastern chipmunks, are most likely to infect larval and nymph stages of black-legged ticks (*Ixodes scapularis*).
- People are most likely to contract Lyme disease from the bite of an infected nymph.
- Excluding deer can affect tick density. In areas smaller than 6 acres, the absence of deer may increase tick numbers. Exclusion from areas larger than 6 acres may decrease ticks numbers.
- Analysis of data from 4 states including Pennsylvania shows no relationship between the spatial distribution of Lyme disease and deer abundance.
- There is no clear relationship between deer density, tick abundance, and Lyme disease incidence.



For more information on deer and deer management, please visit the Game Commission's website at [www.pgc.state.pa.us](http://www.pgc.state.pa.us)