

Lyme Disease in North Carolina

This fact sheet provides information about the occurrence of Lyme disease in North Carolina. Lyme disease is a tick-borne illness caused by the bacterium *Borrelia burgdorferi sensu stricto*, which is spread by *Ixodes scapularis* ticks in North Carolina and many other states. Symptoms can be varied. Early symptoms of Lyme may occur 3 to 30 days following the bite of an infected tick and may include fatigue, chills, fever, headache, muscle and joint aches, and swollen lymph nodes. About three out of four infected people also develop a unique rash called erythema migrans. This non-painful rash can expand over a period of days to as large as 12 inches across, and can resemble a bull's eye or target (unlike a bump or redness that can occur at the site of a tick bite). If not treated early, the infection can spread to a person's joints, heart and nervous system. Most cases of Lyme disease can be successfully treated with a few weeks of antibiotics.

During 2013, North Carolina reported 173 (39 confirmed and 134 probable) cases of Lyme disease.* For the 5-year period from 2009 to 2013, the state reported 601 (134 confirmed and 467 probable) cases.* Human cases have been diagnosed year-round, with most cases occurring April through July. By the end of 2013, four counties in North Carolina – Alleghany, Haywood, Guilford and Wake – had been classified as endemic for Lyme disease for surveillance purposes. This means that two or more cases have been confirmed in each county and the patients' travel histories indicate that the infection was acquired in that county.

The **blacklegged tick** (*Ixodes scapularis*) is the vector (carrier) for Lyme disease in North Carolina. Blacklegged ticks have been found statewide but are more plentiful in the eastern counties. Although this tick



Figure 1: Blacklegged ticks from left to right, male, nymph and female, compared to a dime and 12-point newspaper type.

is commonly referred to as the 'deer tick' in other states, the name is misleading in North Carolina, where blacklegged ticks are only one of many species of ticks that feed on deer.

In North Carolina, adult blacklegged ticks are active on warmer days during the winter months, October through April. The adult ticks are slow-moving and prefer large mammals as hosts, such as deer. Encouraging deer and other wildlife in your yard is also an invitation to blacklegged ticks.

The lifecycle of blacklegged ticks generally lasts two years. During this time, they go through four life stages: egg, six-legged larva, eight-legged nymph, and adult. After the eggs hatch, the ticks must have a blood meal at every stage to survive. The adults usually mate on deer, and the females fill with blood before

dropping off to lay their eggs. Each female can lay upwards of 1,000 eggs, which usually hatch in the spring.

The nymphs are active during the summer months and are most likely to transmit disease. The nymphs' small size and generally painless bite make prevention and detection especially important. When in areas that may have blacklegged ticks, it is best to wear long pants and long-sleeved shirts, tuck pant legs into socks and tuck shirt-tails into pants. Using tick repellents can add an additional layer of protection. Thorough tick checks are especially important and should be done before and after showering. Pay particular attention to the scalp, back and groin, using a mirror to check areas you cannot easily see. Prompt detection and removal of ticks can help prevent disease from tick-borne illnesses, including Lyme disease. Blacklegged ticks are also associated with transmission of *Anaplasma phagocytophilum* and *Babesia spp.*

For general information on Lyme disease and preventing tick-borne illnesses, as well as a fact sheet, Making Sense of Repellents, see the N.C. DHHS Communicable Diseases website at <http://epi.publichealth.nc.gov/cd/diseases/lyme.html>. For more detailed information, including diagnosis and treatment, see the CDC's web site at www.cdc.gov/lyme.

* Provisional data, subject to change with final year end case reporting.

Photo by Marcée Tolliver, 2013.