

SOUTHERN WILDLIFE RESOURCES

Reference Library

**Ticks of Kentucky
and the Diseases They Carry**

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Why This Guide Exists

Ticks are not a disease-causing agent. They are vectors, which are animals that carry pathogens from a wild host to a person. In Kentucky, ticks are the animals most likely to make a member of your household sick. The way to lower your family's contact with the pathogens that ticks carry is to lower your family's contact with the ticks themselves. This guide explains 1) which ticks live in Kentucky yards, 2) what they carry, 3) what property treatment can do about them, and 4) steps that reduce your family's exposure to ticks.

Nothing in this guide constitutes medical advice. We are wildlife and pest management professionals. We do not diagnose, and questions about symptoms, testing, or treatment belong to your physician.

The Ticks in a Kentucky Yard

Five species account for nearly all the human encounters in Central Kentucky. They do not carry the same pathogens and do not live in the same places. The species of tick that bites you determines what you and your physician watch for, and where the tick lives changes what type of control works best for you.

Species	Where you meet it	Associated pathogens and conditions
Lone star tick (<i>Amblyomma americanum</i>)	The most abundant human-biting tick species in Kentucky. It is an aggressive biter that actively pursues its hosts. Woodland edges, brushy cover, and deer range.	Ehrlichiosis, tularemia, Heartland virus, Bourbon virus, southern tick-associated rash illness (STARI), alpha-gal syndrome
American dog tick (<i>Dermacentor variabilis</i>)	Grassy and weedy areas, trail edges, old fields. Adult females most commonly bite humans. Peak risk occurs in spring and summer.	Rocky Mountain spotted fever, tularemia, tick paralysis
Blacklegged tick (<i>Ixodes scapularis</i>)	Leaf litter in hardwood forests and shaded edges. It has been documented as widespread across Kentucky and is not only an eastern-seaboard problem.	Lyme disease, anaplasmosis, babesiosis
Gulf Coast tick (<i>Amblyomma maculatum</i>)	Found to be widespread in Kentucky through statewide wildlife-based sampling.	Spotted fever group rickettsiosis (<i>Rickettsia parkeri</i>)
Brown dog tick (<i>Rhipicephalus sanguineus</i>)	One of the few ticks that can complete its entire life cycle indoors, which is how kennels and homes become infested with ticks.	Rickettsiosis, canine ehrlichiosis

Table 1. Tick species of central Kentucky, habitat, and associated pathogens and conditions.

The Asian longhorned tick, an invasive species first detected in the United States in 2017, is also tracked by the Kentucky Department of Fish and Wildlife Resources. Females reproduce without mating, which allows populations to grow rapidly. The current concern in the United States centers on livestock diseases.

Note how much of Table 1 points to one species. The lone star tick is the most abundant human-biting tick in Kentucky and carries the longest list of pathogens. Most of what reduces tick exposure on a Kentucky property is aimed at the lone star tick, and everything else follows from this.

What These Ticks Carry

Ehrlichiosis

Kentucky has some of the highest ehrlichiosis incidence rates in the United States. In a statewide surveillance conducted through the University of Kentucky Department of Entomology in partnership with the Kentucky Department for Public Health, researchers collected 5,726 lone star ticks across 77 counties and detected *Ehrlichia chaffeensis* in ticks from 32 of those counties, with a minimum infection rate of 1.8 percent (Pasternak & Palli, 2023). The symptoms include fever, headache, fatigue, and muscle aches.

Rocky Mountain spotted fever

It is transmitted chiefly by the American dog tick. State health guidance emphasizes that Rocky Mountain spotted fever can become severe if treatment is delayed. The early signs include fever, headache, and characteristic rash.

Lyme disease

It is present in Kentucky and is transmitted by the blacklegged tick. A statewide survey of ticks collected from white-tailed deer, elk, and black bears found that blacklegged and Gulf Coast ticks were far more widely distributed in Kentucky than previously documented, with *Borrelia burgdorferi* detected in 11 percent of the blacklegged ticks tested and *Rickettsia parkeri* in 3 percent of the Gulf Coast ticks (Lockwood et al., 2018).

Anaplasmosis and babesiosis

Both diseases are transmitted by the same black-legged tick that transmits Lyme disease. Anaplasmosis is caused by the bacterium *Anaplasma phagocytophilum* and produces fever, chills, headaches, and muscle aches. Babesiosis is caused by the red blood cell parasite *Babesia microti* and ranges from no symptoms to severe illness, with the greatest risk in older adults, people without a spleen, and people with weakened immune systems. Both are established in Northeast and Upper Midwest regions. Kentucky cases are uncommon, but the vector is now documented across the Commonwealth, and the two are worth mentioning to a physician after a blacklegged tick bite.

Spotted fever group rickettsiosis

It is caused by *Rickettsia parkeri* and transmitted by the Gulf Coast tick. Typically milder than Rocky Mountain spotted fever, and often marked by a dark scab at the bite site, along with fever, headache, and rash.

Tularemia

A bacterial disease carried by both the lone star tick and the American dog tick, and also acquired by handling infected rabbits and other wildlife. Symptoms depend on the route of exposure and commonly include fever and skin ulcers at the bite site, along with swollen lymph nodes.

Alpha-gal syndrome

Alpha-gal syndrome is an allergy to mammalian meat, dairy products, and mammalian byproducts. It is triggered by a sugar molecule delivered in the saliva of the Lone Star tick. Reactions range from hives and gastrointestinal distress to anaphylaxis, and they are managed by avoidance rather than cure.

A CDC study published in July 2026 tested blood donor samples from ten states. Kentucky's estimated population seroprevalence of alpha-gal antibodies was 22.7 percent among residents aged 16 and older, and among people who tested positive, Kentucky had the highest average antibody levels of any state in the study.

This number requires an honest caveat. A positive antibody test result is not a diagnosis. Only a small minority of people with alpha-gal antibodies actually have the syndrome, and the CDC specifically warns that testing people without compatible symptoms leads to overdiagnosis and unnecessary dietary restriction. The 22.7 percent figure indicates how routinely Kentuckians are bitten by Lone Star ticks.

Southern tick-associated rash illness

If you develop a spreading circular rash after a tick bite in Kentucky, Lyme disease is not the only explanation, and it is frequently not the most likely one. Southern Tick-Associated Rash Illness (STARI) produces a red, expanding lesion at the site of a lone star tick bite, usually within seven days, growing to three to twelve inches across and sometimes clearing in the center into a target. It can be accompanied by fatigue, fever, headaches, and muscle and joint pain. The CDC states that the cause is unknown, that it is specifically associated with lone star tick bites, and that studies have excluded the Lyme bacterium as the cause. It is not nationally reportable; therefore, we do not yet know how common it is. A bull's-eye rash in central Kentucky deserves a physician visit and an accurate account of what bit you and when, rather than a self-diagnosis in either direction.

Heartland virus and Bourbon virus

Both are newly emerging tick-borne viruses associated with the lone star tick. There is no vaccine or specific treatment available, and prevention of tick bites is the only defense.

The Bourbon virus is worth understanding accurately because most of what circulates about it locally is wrong in the same way. **It is not named after Bourbon County, Kentucky.** The virus was

first identified in 2014 in a patient from Bourbon County, Kansas, and the CDC named that county as the origin of the name. Confirmed human cases remain rare, and the CDC describes them as occurring in the Midwest, East Coast, and southern United States. Reported symptoms include fever, fatigue, rash, headache, body aches, nausea, and vomiting, and deaths have occurred due to the disease. We are not aware of a confirmed case in Kentucky that can be verified against the CDC or the published case literature.

Tick paralysis

This rare condition is caused by a toxin in the saliva of certain feeding ticks. In this region, the American dog tick is the most common vector. It produces progressive weakness that reverses when the tick is found and removed, which is another reason why daily tick checks are important.

What Controlling the Vector Can and Cannot Do

Controlling a disease vector at a location reduces human contact with the vector at the same location. In public health, this principle is well established at the population scale: on a Connecticut peninsula where deer density was held at approximately five per square kilometer for over a decade, tick abundance fell by 76 percent and resident-reported Lyme disease fell by 80 percent (Kilpatrick et al., 2014). While it required near-elimination of deer on a closed peninsula, that was sustained for years, it demonstrated that vector control can be effective when it is applied with sufficient intensity over a large area for a long duration. In another study, deer numbers decreased by almost 50 percent across an open New Jersey township, but neither tick abundance nor Lyme disease incidence changed (Jordan et al., 2007).

The question for a homeowner is narrower: what does a barrier treatment on one yard do? Acaricides (tick pesticides) applied to tick habitats reliably reduced the number of questing ticks on the treated property by approximately 63 percent in the largest trial (Hinckley et al., 2016). However, whether this reduction protects the people living there is less clear and often depends on their ability to recolonize the yard. Larger and longer trials have reached similar conclusions, and reviews of the field summarize the evidence in the same way (Keesing et al., 2022; Eisen & Stafford, 2021; Ostfeld & Keesing, 2023).

What this means in plain terms is that property treatment gives you fewer ticks where your family spends its time, which is real, measurable, and worth having. It does not provide a complete shield, and a household that relaxes its personal precautions because the yard was sprayed can end up worse off than one that never sprayed. Therefore, personal protection measures are not an afterthought. They are part of the program with the best evidence.

Reducing Exposure on Your Own Ground

Integrated Pest Management involves identifying the pest, determining its location, assessing the actual exposure, and then using the entire toolbox. The toolbox has six compartments for a tick property.

Know where the ticks are

Ticks rarely occur on open lawns. Rather, they often concentrate on the woodland edge, leaf litter, tall grass, ornamental ground cover, and shaded transition zones. The exposure that matters is where these areas intersect with the routes your family and pets use every day. A tick 50 yards into the woods is not your problem. A tick along the path to the trampoline is.

Change the habitat

The permanent, pesticide-free half of the program, and on many properties, the half that produces significant benefit. Dry mulch or gravel borders between woods and lawns, leaf litter removal, mowing, and ground cover management in the transition zone, moving play structures, seating, and dog runs out of the edge, and relocating woodpiles and bird feeders that concentrate the rodents immature ticks feed on are all changes that can be effective and do not wear off in three weeks.

Read the hosts

Deer and small mammal activity drive tick abundance on properties. Where deer pressure is the engine, the honest answer is to address it as a deer problem rather than pretending that an acaricide solves it.

Use physical barriers

Fencing that keeps deer off a defined area, hardscape and gravel breaks that ticks will not cross to reach a play space, and keeping the dog's route out of the edge are all exclusion techniques that can be effective, and none of them involve pesticide products.

Apply product where the ticks are

A licensed barrier application belongs on tick habitat and the woodland edge, not broadcast across turf where ticks are not questing. Placement is what separates a treatment that reduces exposure from one that puts the product where the problem is not. Some properties require only one application per season, whereas others may require two. Some yards simply need habitat work and almost no pesticide products.

Protect the people

EPA-registered repellents, permethrin treatment for clothing and footwear, clothing practice, and a daily tick check for everyone in the household, including the dog. Consult your veterinarian about tick prevention for pets. Property treatment does not substitute for the treatment of pets, and dogs often carry ticks indoors.

Find out what bit you

The Kentucky Tick Surveillance Project at the University of Kentucky Department of Entomology accepts tick submissions from residents of Kentucky for identification and pathogen testing.

Submitting a tick tells you what actually bit you and contributes to state surveillance at the same time.

How to Remove a Tick

Kentucky Department for Public Health guidance: use tweezers, grasp the tick as close to the skin surface as possible, and pull straight back with a slow, steady force. Wash the bite site afterward. Do not use heat, petroleum jelly, or nail polish, and do not twist.

Note the date and location on your body and save the tick. If an illness follows, this information is important to the physician.

When to Call a Physician

Fever, headache, rash, joint pain, or unusual fatigue in the days or weeks after a tick bite warrants a call to the doctor. Inform them that you were bitten, when, and where you were bitten. In particular, Rocky Mountain spotted fever can become severe if treatment is delayed.

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