

Tiny, Tenacious, Terrible Ticks

They look repulsive, and their behavior is downright nasty.

by Bernie Rains



Ticks crawl unnoticed over clothing (right) in search of flesh. When they find it, they bite with gusto (above).

You can't spend time outdoors without being a target for ticks. These little vermin wait patiently on blades of grass or other vegetation for opportunities to attach to any animal, including you or your pets. Not only are they pests, their bite has the potential to transmit disease.

Only mosquitoes surpass ticks in the ability to transmit disease to animals and humans. About 850 species of ticks have been identified worldwide. They hunger for the blood of mammals, birds and reptiles. It's during their meal that they can introduce a wide array of disease-causing organisms.

Ticks are closely related to mites, spiders and scorpions. They are divided into two families: Ixodidae (hard ticks) and Argasidae (soft ticks). The soft ticks generally parasitize birds. The hard ticks are primarily parasites of mammals. They are the villains Missourians most often encounter.

A tick's life is divided into four stages: egg, larva (often called seed ticks), nymph and adult. Ticks advance through these stages by molting, during which they shed their outer skin.

PHOTOS BY JIM RATHBERT



After an egg hatches, the emerging larva is about the size of a poppy seed and has six legs. After a blood meal, typically from a small rodent, the larva drops off its host, casts its skin and becomes an 8-legged nymph. After attaching and feeding on another mammal, the nymph drops to the ground and transforms into an 8-legged adult. Adult ticks are 1/16 to 1/4 inch long, or about the size of a sesame seed. When engorged with blood, female ticks might expand to 3/8 inch or longer.

Soon after feeding and mating, which usually occurs on a host, the adult male dies. The female drops to the ground to lay thousands of eggs, and then she dies, too. Eggs may not hatch for several months, depending on humidity, temperature and other conditions.

Ticks are hardy parasites. Their skin is so tough it's hard to crush one. The larva, nymph and adult can survive several months without feeding. When not climbing onto low vegetation to wait for an animal or human to pass, they remain on or near the ground. Dehydration is their worst enemy. They often have to leave their perches to rehydrate themselves with ground moisture.

Questing

Ticks cannot run, leap or fly. They only crawl, and only slowly. To find and attach to a host, they use a wait-and-watch technique called questing. They climb to the top of grass stems or take a position on the branches of bushes. They hold on with their three pairs of back legs and extend their hooked front legs away from their body.



JIM KALISCH, UNIVERSITY OF NEBRASKA DEPARTMENT OF ENTOMOLOGY

An American dog tick with her eggs.

When a potential host brushes against the vegetation, the tick's extended legs snag fur, hair or clothing. This pulls them off the vegetation. Ticks sense exhaled carbon dioxide and emitted body odors, and will crawl a short distance to the source. They also detect vibrations and changes in light intensity caused by movement. These alert them to an approaching potential meal.

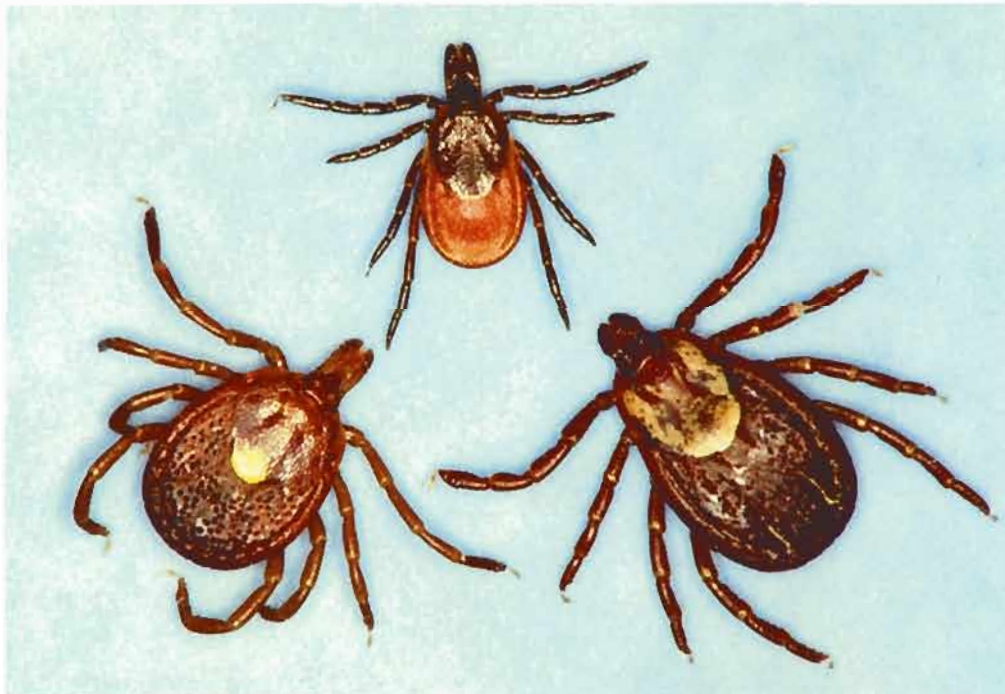
The habitat of hard ticks supports their questing behavior. They frequent woods, tall grass, weeds and brushy areas. Overgrown, vacant lots, waste farm-fields, and weedy edges of paths and trails are prime tick areas, particularly where wildlife is abundant. They are not typically found in well-maintained lawns.

Missouri has many species of ticks, but the two most often encountered hard ticks are the lone star tick (*Amblyomma americanum*) and the American dog tick (*Dermacentor variabilis*).

The deer tick (*Ixodes scapularis*), sometimes called the blacklegged tick, is another common Missouri species.

The lone star tick is reported to be one of the most aggressive ticks and actually will pursue a potential host a relatively long distance. The female of this species is easily identified by the white dot in the center of her back.

The American dog tick is found throughout most of the United States. Newly hatched larvae are yellow.



Shown from left to right are adult female lone star, deer and American dog ticks.

JIM KALISCH, UNIVERSITY OF NEBRASKA DEPARTMENT OF ENTOMOLOGY

JIM RATHERT



Ticks climb to the tips of grasses or branches and wait for a potential host. This behavior is called questing.

Adults are brown. Blood-engorged females become slate-gray.

These ticks are most active from April through July. Another tick that parasitizes dogs and may be carried inside the home to become an indoor pest is the brown dog tick. It is one of the most widely distributed ticks in the world and can infest window and door moldings, baseboards and furniture if brought into the house by the family pet.

Ticks and Disease

Any tick bite is dangerous because of the threat of disease. The three most prevalent tick-borne diseases are Rocky Mountain spotted fever, Lyme disease and ehrlichiosis.

Rocky Mountain spotted fever is caused by a rickettsia, a species of bacteria. The disease was originally called black measles because of its characteristic dark spotted rash on victims. It occurs throughout the United States. The American dog tick is the primary carrier, but the lone star tick is also suspected.

Disease symptoms appear in three to 12 days after the initial bite and include high fever, headache, backache, aching muscles and a rash that starts on the wrists and ankles by the fifth day. The rash spreads to other parts of the body, including palms of hands and soles of feet. It is essential to see your physician if such symptoms occur. A delay in seeking medical attention can cause serious complications and possibly death.

Lyme disease is caused by a spirochete bacterium.

Lyme disease is currently considered the number one arthropod-borne disease in the country. The deer tick is considered to be the main carrier, but the lone star tick is also suspected.

Lyme disease is difficult to diagnosis because its early symptoms mimic the flu. These symptoms include fatigue, headache, stiffness or pain in neck, muscles or joints, fever and swollen glands. An expanding circular or oval-shaped red rash or bump may appear at the site of a tick bite within two to 32 days and become a spreading red ring or bull's-eye. Treating the disease in its early stage with antibiotics is essential. If untreated, damage to joints and nervous system can occur, including arthritis, chronic pain, numbness and cardiac abnormalities.

Ehrlichiosis is a more recently recognized tick-borne disease caused by the bacterial species *Ehrlichia*. The bacteria is primarily spread by the lone star tick, but the deer tick and the American dog tick are suspected carriers. Early symptoms of ehrlichiosis are tiredness, high fever, muscle aches, headache and, in some cases, a rash that appears five to 10 days after a tick bite. The disease attacks the blood cells and is usually treated with antibiotics.

Other tick-borne diseases include tularemia, babesiosis, relapsing fever and the little-understood tick paralysis.

Because timely treatment is essential for tick-borne diseases, it's important to monitor yourself for unusual symptoms following any tick bite. Especially look for flu-like symptoms or rashes that occur within several days



JIM KALISCH, UNIVERSITY OF NEBRASKA DEPARTMENT OF ENTOMOLOGY

The lone star tick on the right is engorged with blood

after a tick bite. Report such symptoms to your family physician.

Tick Bite First Aid

You cannot contract a tick-borne disease unless a tick bites you, or you come in contact with tick body fluids through your mouth or eyes, or through a skin cut. Even if a tick bites you, promptly removing the tick diminishes the potential for disease transmittal.

Don't just grab the tick and pull it out. Squeezing the rear portion of its body may force the tick to inject body fluids into your flesh. Besides, you should avoid touching the tick with your bare hands because some fluids may enter your system through small cuts.

Use sturdy tweezers or blunt forceps to remove the tick. Pinch the tick lightly as close to your skin as possible and remove the tick with a steady lifting motion—no

twisting. Be careful not to squeeze, crush or puncture the tick's body. It's a good idea to save the tick in case you do come down with something. Put it in a sealed plastic bag marked with the date and keep it in the refrigerator.

After removing the tick, bathe the bite area (maybe even scrub it with cotton swab dipped in hydrogen peroxide), apply antibiotic ointment and cover it with a bandage.

Beware of some often-cited tick removal methods. Some people, for example, recommend touching the tick with a hot match. This might cause the tick to rupture, increasing the chances of disease transmission. Coating the tick with nail polish or petroleum jelly might cause the tick to regurgitate into your flesh.



A tick's life has four stages: egg, larva, nymph ("seed tick") and adult.

JIM KALISCH, UNIVERSITY OF NEBRASKA DEPARTMENT OF ENTOMOLOGY

JIM RATHERT



Ticks spend much of their time in the moist leaf litter on the forest floor. Their worst enemy is dehydration.

Ticks and Dogs

In 2003, an animal medical center in Wentzville confirmed 100 active cases of tick-borne diseases among client dogs. Of those, 80 dogs tested positive for Rocky Mountain spotted fever, 19 were positive for ehrlichiosis, and one dog had Lyme disease. Two of the dogs with ehrlichiosis died.

Rural clients usually know about ticks and the diseases they carry. However, pet owners moving from urban areas to the country may not be as aware as they should be. Dog owners should have their pets tested using what's called a titer test, and take action to protect their pets from ticks.

Prevention and Control

If you walk through uncut fields, brush or other likely tick habitat, check your clothes and skin frequently for the tiny, crawling critters. Wear light-colored clothing to allow you to more easily see ticks. Treat clothing with a permethrin insecticide (dry before wearing) and protect exposed skin with a tick repellent. At the end of the day,

perform a full-body inspection using a mirror.

Your veterinarian can recommend preventative measures to protect your pets.

You can reduce the number of ticks in your yard by keeping your lawn cut short and edges trimmed. Remove brush and leaf litter to allow sunlight to reach the ground. Woodpiles are prime locations for ticks. To prevent infestation, wood should be neatly stacked off the ground in a dry location. If chemical control becomes necessary, use appropriate products according to label directions.

If personal and home security precautions are followed, you can protect your family, your pets and yourself against tick attack. Recognizing ticks and applying proper first aid if bitten will lessen the chance of contracting tick-borne disease. Knowing the early symptoms of disease and seeking appropriate medical assistance reduces the potential for debilitating complications. All of us should take tick bites seriously, but we should not let the presence of ticks and their diseases in our environment prevent us from enjoying Missouri's great outdoors. ▲