



Tick-ed Off?

Tips for dealing with them

by Lee Townsend

Hundreds waited motionless in the scrub growth at the edge of the path, just as they had every day for the last two weeks. Once or twice they sensed vibration; something moved nearby but never came close enough. Fortunately, the vegetation provided some shade. They could move down to the ground if it got too hot. It was humid, too but that was just what they needed. There was no rush; they could wait—for weeks if necessary...

Poor vision only allowed them to make out a dark form, but stronger vibrations traveled through the ground as something approached, slowly but steadily. They became excited, and each of them climbed whatever was nearby—a grass blade, anything that would get them up off the ground and give them a better chance to be picked up. The movement stopped; now they were in a shadow. The air became a little warmer. Carbon dioxide from exhaled breath caused them to stretch out their front legs as far as they could. Small claws on those legs contacted something coarse, hooking to it. They released their back pairs of legs and began to crawl upward. First, there were just a few of them, but the target remained still, so many more moved steadily toward the stimulus and started to climb up. A meal had finally arrived!

The story above is repeated hundreds of times each year in Kentucky. More than a hundred six-legged lone star tick larvae (seed ticks) had found a blood meal. During the next few hours they will crawl over their host in search of some skin. Then, they will settle and start a blood meal that could last for a day or more. A few more steps follow in the process. The right skin chemicals will let them know if the host is acceptable. If all goes well, they will remain attached until engorged with blood; then each will detach from the host and fall to the ground. The next few weeks will be spent digesting the blood meal and molting to the eight-legged nymphal stage. If they drop off at a good site, another suitable animal will eventually come by and the process will be repeated.

The lone star tick uses three different host animals (Figure 1) during its development and may take 1-2 years depending on whether or not the tick can find

a suitable host between life stages. All stages of the tick will feed on small and large animals, including humans. The American dog tick, the other common species, is also a three-host tick, but the adults only feed on large mammals, including humans.

Ticks usually crawl on an animal or human for some time before feeding, attaching at the groin, waist, under arms, or

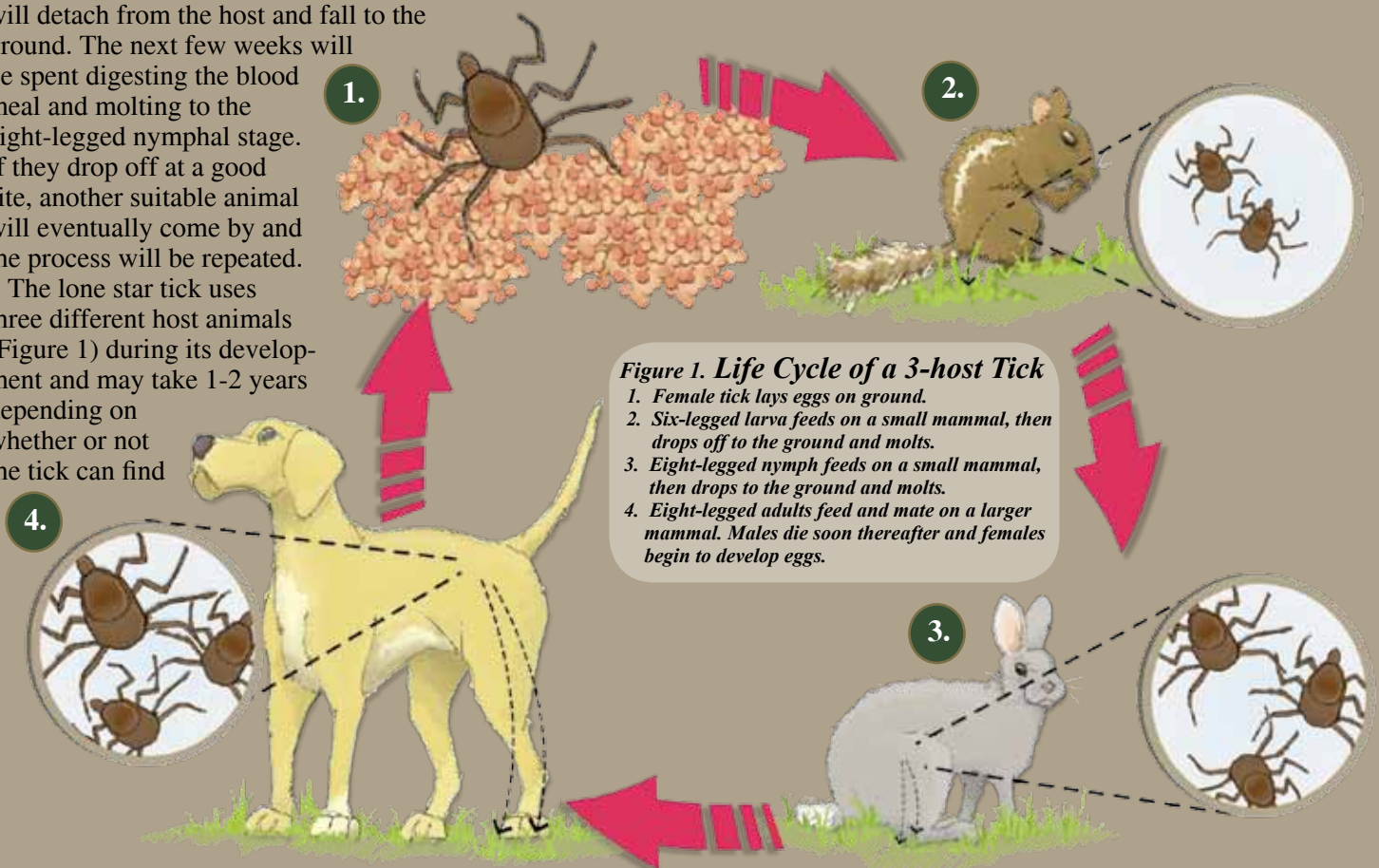
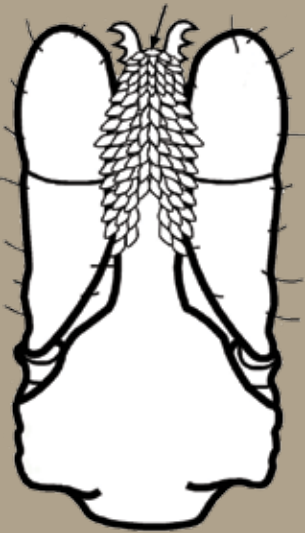


Figure 1. Life Cycle of a 3-host Tick

1. Female tick lays eggs on ground.
2. Six-legged larva feeds on a small mammal, then drops off to the ground and molts.
3. Eight-legged nymph feeds on a small mammal, then drops to the ground and molts.
4. Eight-legged adults feed and mate on a larger mammal. Males die soon thereafter and females begin to develop eggs.

Hypostome



Drawing modified from a Purdue University drawing.

on the neck. They slice the skin and insert a barbed feeding tube. Finally, they cement themselves securely to the skin for up to two weeks, which makes them very difficult to remove.

Remove ticks as soon as you see them. Use fine-tipped tweezers to grasp the tick very close to your skin. Pull with gradual, steady pressure. Avoid crushing the tick's body. Clean your skin with soap and warm water or alcohol. Use of petroleum jelly, a hot match, or nail polish is not effective; ticks cannot just "let go." In fact, use of such methods may irritate the tick and stimulate it to release additional saliva into the bite.

Elongate mouthparts of the lone star tick. The barbed hypostome goes into the skin while the tick feeds and 'cement' is secreted to hold the tick firmly in place.

Tick Bites and Tick-borne Diseases

Ticks inject several substances as they feed, including anticoagulants. These substances can cause mild to moderate skin reactions that can last for several days. Some people have a severe allergic reaction.

The lone star tick and American dog tick can carry some diseases, but neither vectors Lyme disease. Fortunately, the percentage of ticks carrying diseases is very low. Also, they must feed for several hours before transmission occurs. Use

of repellents and frequent body inspections are effective ways of reducing risks.

Web pages provided by the Centers for Disease Control and Prevention are good sources of information about diseases transmitted by ticks. The lone star tick can transmit Southern Tick Associated Rash Illness (STARI) (go to www.cdc.gov/ncidod/dvbid/stari/) and human ehrlichiosis (see www.cdc.gov/ticks/diseases/ehrlichiosis/). The American dog tick can carry Rocky Mountain spotted fever (information at www.cdc.gov/ticks/diseases/rocky_mountain_spotted_fever/faq.html).



Bites of lone star tick larvae (seed ticks). The ticks attached where a sock held them against the skin. Redness and itching are from an allergic reaction to substances injected as the ticks feed.

Protection from ticks

Limiting exposure to ticks reduces chances for unpleasant bites and possible disease infection. It is impossible to completely avoid tick exposure in and around wooded areas. However, there are ways to protect yourself:

- Light-colored clothing lets you see ticks crawling on your clothing.
- Tucking your pants legs into your socks will help prevent ticks crawling inside them.

- Repellents will discourage tick attachment. Clothing treatments containing permethrin will last for several days. Repellents containing products such as DEET (n, n-diethyl-m-toluamide) can be applied to the skin, but re-application is necessary.
- A body check should be conducted upon return from potentially tick-infested areas. Use a handheld or full-length mirror to view all parts of your body. Remove any tick you find and take a hot, soapy shower.



Photo courtesy: Lee Townsend

An adult American dog tick crawling up the neck. Ticks wander for an hour or more before attaching to feed. Frequent "tick checks" will allow you to remove them before that happens.

When returning from potentially tick-infested areas, check children for ticks, especially in the hairline at the neck. Ticks may also be carried into the household on clothing. Put clothing through a dryer cycle; the hot air should kill them.

Tick Management

Ticks are most common in overgrown brushy areas along the margins of forest and woodland clearings and paths. In addition, they will be found near potential blood meals: mammals of different sizes, including humans. While it is impossible to eliminate ticks and their hosts, you can make an area less suitable for them. Mowing and removal of vegetation—habitat modification—will make areas less suitable for ticks and their hosts and is one of the most effective, long-term means of reducing tick numbers.



Tick infestations on wildlife add to stresses and can impact animal health and survival.

Photo courtesy: T. Kiper

More information on tick management is available in the Tick Management Handbook available at www.cdc.gov/ncidod/dvbid/lyme/resources/handbook.pdf.

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Adult American dog tick (corner page 8) & lone star tick (right). Lone Star ticks have longer mouthparts and females have a white spot on their backs.

Photo courtesy: Lee Townsend

