

AMERICAN DOG TICK



Common Name: American dog tick
Scientific Name: *Dermacentor variabilis*

Introduction. This tick's common name comes from the fact that it is only found in North America and that domestic dogs are the favorite host of the adults. Although not a structural pest, it is commonly found on dogs and readily attacks humans. It is of medical importance because it vectors the causal organisms of Rocky Mountain spotted fever and tularemia, and also causes tick paralysis. It is found throughout the United States except for the area of the Rocky Mountains, and in Canada and Mexico.

Recognition. Unengorged adult females are about 3/16 inch long, while males are slightly smaller – about 1/8 inch long. Engorged females are about 5/8 inch long, and 3/8 inch wide. American dog ticks have oval, flat bodies and are colored brown with whitish to grayish markings. Female ticks have a marbled cape-like pattern on the upper front part of the body while males have a marbled pattern over the entire upper body surface.

Similar Ticks. The brown dog tick or so-called kennel tick (*Thipicephalus sanguineus*) is brown with black markings and is less commonly encountered than the American dog tick. Occasionally, dogs become infested with brown dog ticks while boarding in kennels with previously infested dogs.

Biology. The engorged female tick drops off the host animal and seeks a sheltered place to lay her eggs. Over 14 to 32 days she lays egg masses totaling 4,000 to 6,500 yellowish-brown eggs, and then dies. Egg hatch usually occurs in 36 to 57 days. Unfed 6-legged larvae actively crawl about seeking a host. They can survive for up to 540 days unfed. Larvae require about 4 days (range 3 to 13 days) to become engorged, then drop off the host and seek shelter for molting purposes. Usually 10+ days (range 6 to 247 days) are required from drop to nymphal emergence. Unfed nymphs (8-legged) actively crawl about seeking a host. Engorgement usually requires about 6 days (range 3 to 12) but they can survive for up to 584 days unfed. After feeding, they drop off the host and seek shelter in which to molt. Molting usually requires about 24 days (range 24 to 291). Adults crawl up on grass or other low vegetation and

wait for a host to pass. After both sexes have fed, females are completely engorged in about 11 days (range 5 to 27 days), mating occurs on the host. Males continue to feed but females drop off to lay their eggs. Females require a 3 to 58 day preoviposition or waiting period before egg laying begins. Unfed adults can survive for about 2 to 3 years (up to 1,053 days). The entire life cycle (egg to egg) requires from 3 months to more than one year, and both larvae and nymphs can overwinter. In the northern states, a 2-year life cycle may be more common.

American dog ticks are the primary vector of Rocky Mountain spotted fever in the eastern United States, which they transmit from small animals. This is a severe, acute, infectious disease of the small peripheral blood vessels caused by a rickettsial organism whose characteristic symptom is a rash which develops in 2 to 5 days, starting with the wrists and ankles, and then spreads all over the body. Mortality in humans is 20% or more. Fortunately, attachment for 2 hours or more is required for transmission.

These ticks also transmit tularemia which is caused by a bacillus and is transmitted from rabbits, meadow voles, ground squirrels, sheep, beavers, coyotes, and various game birds. Symptoms include chills and fever, prostration, an ulcer at the tick-bite site, and tender, swollen lymph nodes.

In addition, American dog ticks can cause tick paralysis when they attach on the back of the neck or at the base of the skull and feed for at least 5 to 6 days. Paralytic symptoms usually start in the extremities and become evident as unsteadiness and loss of reflex actions. If the tick is not removed, death may result from respiratory failure; children are particularly susceptible. If the tick is removed, recovery is rapid and usually within 24 to 72 hours.

De-ticking dogs is an important way that Rocky Mountain spotted fever is spread. Handpicking is dangerous because infected tick secretions on the hands can be transmitted via contact with eyes, mucous membranes, etc. Use forceps or a scraping device for removal.

Habits. The American dog tick does not survive well indoors. If found indoors, it was probably carried in on a dog and dropped off when fully engorged to seek a suitable place for egg laying.

This is a 3-host tick, with each stage requiring a different host. Both larvae and nymphs actively crawl about seeking a small mammalian host, primarily rodents. Hosts include the deer mouse, meadow vole, cottontail rabbit, muskrat, Norway rat, squirrel, and cat.

Adults crawl up grass or other low vegetation, cling to it with their 3rd pair of legs, and wave their other legs about ready to grasp onto any passing host. This is called their "waiting position." They prefer larger mammals as hosts and these include the preferred dog and others such as man, cattle, opossum, coyote, hog, horse, raccoon, wild cat, squirrel, sheep, skunk, deer, fox, domestic cat, mule, rabbit, Norway rat, ground squirrel, donkey/burro, weasel, and groundhog.

American dog ticks are attracted by the scent of animals and are therefore, most numerous along roads, paths and trails. The concentration is further increased along such travel routes by the dropping of engorged ticks from their host animal.

Larval and nymphal activity usually starts about the end of March,

representing those which overwintered, and continues to mid-July. Nymphal activity predominates from June to early September. Adults become active about mid-April, peak in June, and decline until mid-September.

Control. Reducing the likelihood of being fed upon by American dog ticks can be separated into two recommendations to the public and two steps best left to a Rottler pest management professional:

Cultural Control & Precautionary Measures.

1. Personal protection: Keep trouser legs tucked into socks or boots, shirts tucked in, and clothes buttoned. Avoid sitting on logs, stumps, or the ground in brushy areas. Periodically inspect clothing and the body for ticks to remove them before they become attached. If a tick is found attached, remove it with a slow, steady pull that will not break off the mouthparts and leave them in the skin. It is best to use fine-tip forceps whose tips are placed on or just behind the mouth parts. If a scraping device (e.g., clean putty knife, ruler, etc.) is used, draw the device firmly over the skin and against the head of the tick until it is removed. Do not put pressure on the tick's abdomen or liquids from the tick's body may be forced into the wound. Be sure to clean the attachment area with rubbing alcohol or other disinfectant. Liberal use of proven tick repellents is helpful, including application to clothing.
2. Habitat modification. Keep the grass cut to 3 inches or less; this also reduces rodent habitat. Trim back vegetation along trails, paths, and yard edges. Remove debris and ground cover to discourage rodents.

Professional Measures.

1. Pesticide application: In heavily infested areas a Rottler pest management specialist can make an application of an appropriately labeled residual pesticide. The technician will concentrate on the areas most likely to harbor ticks such as along paths, trails, property lines, fence rows and the yard-woods interface. The first application should be in the early spring to reduce the larvae and nymphs that overwintered.
2. Removal of hosts: The reduction or elimination of rodents in the area immediately surrounding the house is helpful. This can be accomplished with the use of rodenticides and/or rodent traps placed in tamper-resistant stations and secure areas inaccessible to children and pets.



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