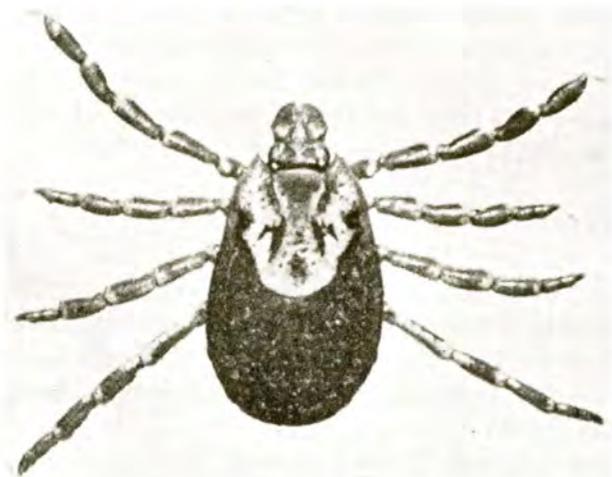


TICKS

Ticks are small animals, similar to insects and spiders. Their bodies are oval, flattened, and appear hard and leathery. Adult ticks have eight legs; the larvae or "seed" ticks have only six. Larval ticks are very small, about 1/40 inch long. The intermediate or nymphal stage is about 1/16 inch; adults are about 3/16 inch. Fully engorged females of common species can expand to 1/2 inch in length.

Ticks feed exclusively on the blood of animals, piercing the host's skin with their mouth parts. A series of barbs along the shaft of the mouth parts anchors the head of the tick to the host's skin, making removal difficult. Unless a tick is removed it remains feeding for several hours, even days, before becoming fully engorged. Only then will it release its hold and drop from the host to molt or lay eggs.



Female dog tick. *Note:* female will increase as much as 250% in size when engorged. Indicating the proportions of these enlargements would require additional enlargement of engorged female photo (at right) by at least 80%.

There are three common kinds of ticks in Washington that bite humans. They are: *Dermacentor andersoni* (the Rocky Mountain wood tick), *Dermacentor variabilis* (the American dog tick), and *Ixodes pacificus* (a tick found in western Washington). These species are usually encountered outdoors in brushy, woodland areas. They feed on a variety of animals, large and small. The brown dog tick, *Rhipicephalus sanguineus*, is primarily a pest of dogs and only rarely bites humans. It lives in dog kennels, houses, and other areas where dogs are kept.

Life Cycle

The life cycles of the three common species of ticks are similar, although the host range and



American dog tick, engorged female.

duration of life stages varies. All are three-host ticks. Three separate blood meals, generally from hosts of a different size, are required to complete the stages of development. The tick leaves the host at the end of each blood meal to molt or lay eggs. The brown dog tick also requires three blood meals but the dog serves as host for each meal.

Once an adult female has mated and become fully engorged with blood, she drops from the host to seek a protected place to lay eggs. Several thousand eggs are laid in a period of ten days to three weeks. The eggs hatch in about a month and the small six-legged larvae crawl up on vegetation to await a passing host.

The larvae usually attach to small rodents. They feed for a few days, drop from the host and seek shelter for the molt to the nymphal stage. After transforming into an eight-legged nymph, the tick crawls on to vegetation and attaches to a passing animal. This stage can be found on larger hosts, like jack rabbits. The nymph feeds for a few days, drops from the host and transforms into an adult. Adult ticks are common on deer, horses, cattle, sheep, and other large animals. The adult stage most often attacks man.

The life cycle can last up to three years, although two years is more common. Unfed nymphs and adults persist through the winter and seek new hosts in the spring. A blood meal is necessary before the tick can transform into the next growth stage, or before the adult female can lay eggs. The common species of ticks can live up to a year without feeding.

Seasonal Abundance

Ticks are most active in spring when vegetation begins to grow. By July or August (in higher elevations), adults or nymphs, which have not found a host, seek a hibernation site to avoid summer heat. Ticks are most abundant in brushy areas where vegetation is sufficient to support both large and small animals. They are

common near trails and openings where they are likely to encounter passing hosts.

The brown dog tick differs in its pattern of seasonal activity because it is closely associated with dwellings. All of the life stages can be found at any time of the year. When not feeding, the ticks hide in cracks, corners, or moldings of buildings where dogs are housed.

Disease Associated With Ticks

Tick bites are potentially dangerous to humans both from the effects of the bite itself and from transmitted microbes that cause disease. Throughout the U.S., Rocky Mountain spotted fever is transmitted by the Rocky Mountain wood tick, the American dog tick, and to a lesser extent by the brown dog tick. In Washington, only the first of these is known as a transmitting agent. The brown dog tick and the American dog tick can also spread malignant jaundice to dogs. Tularemia or "rabbit fever" is transmitted to man by the American dog tick and the Rocky Mountain wood tick.

The bite of the tick itself can cause dermatitis (an inflammation of the skin), secondary infections, and a condition known as tick paralysis. Instances of tick paralysis are rare. It is caused by the prolonged feeding of a female tick. The actual process causing paralysis is not known. Early removal of the tick results in the complete recovery of the affected person. Failure to remove the tick results in progression of the ascending paralysis until death.

Control

The method of tick control will vary with the species. To determine the species submit a tick in alcohol to your local county agent or Extension Entomologist at Pullman or Puyallup. Since the Rocky Mountain wood tick, the American dog tick, and *Ixodes pacificus* are encountered outdoors, tick control is a matter of prevention of tick bites. Protective clothing worn while

walking through tick infested areas will reduce the numbers of ticks that reach the skin. Garments should overlap to prevent tick penetration between clothing layers. Careful inspection of the body should be made after returning from an outing. Children should be inspected thoroughly. Not all ticks carry disease and a few hours of feeding is necessary for disease transmission by those ticks that do. Prompt removal is the best method of avoiding infection.

Repellants are available that give some protection, but none provide complete protection. They may be applied both to exposed skin and to clothing. Follow label directions for application, avoiding eyes and mouth. Check labels for warnings against application to certain synthetic fabrics. Tick repellants contain at least one of the following chemicals: dimethyl phthalate, dimethyl carbate, Indalone, deet, or ethyl hexanediol.

If a tick has become attached, it should be removed carefully. A drop of alcohol, kerosene, ether, benzene, or fingernail polish may irritate the tick sufficiently for it to withdraw its mouth parts. If the tick is firmly attached, the process of voluntary detachment may take up to an hour. To remove, grasp the tick with tweezers and pull slowly and steadily until its head is free of the skin. Turning the tick over onto its back may make removal easier. Care should be taken not to crush the tick or break off the mouth parts. Mouth parts left in the skin can cause infection. Apply antiseptic to the tick bite and wash hands thoroughly after handling ticks.

When brown dog ticks are encountered, both the home or kennel and the dog must be treated. In summer months these ticks can infest lawns, dog runs, and areas around homes or kennels. They

cannot tolerate cold winters of eastern Washington and must remain indoors to survive. Brown dog ticks have a strong tendency to climb above floor level and can be found in cracks around windows, doors, moldings, or in furniture.

To control ticks in the home, apply a dust or spray, treating cracks, baseboards, doorways, window frames and the furniture dogs inhabit. In the summer, lawns, dog runs and areas around the outside of homes and kennels can be treated to eliminate this source of reinfestation. Dog kennels should be thoroughly treated and old dog bedding replaced. In cases of severe infestation, you may wish to consult the services of a pest control operator.

Dogs must be treated if an infestation is to be eliminated. Liquid washes or dust can be applied to the hair, covering the dog thoroughly. The health of the animals should be considered before any treatment is begun. Some veterinarians will treat dogs for tick control.

The following chemicals may be used for brown dog tick control. Be sure the label on the insecticide you buy lists brown dog ticks. Read label instructions before applying and heed all cautionary statements.

Dogs: Sevin, Malathion, Rotenone or commercial tick powder

Houses: Malathion, Diazinon, dichlorvos (Vapona), propoxur (Baygon)

Kennels and Dog Runs: dichlorvos, propoxur, Sevin, Dibrom

Lawns: Diazinon, Sevin

Prepared by Art Retan, Extension Entomologist, and Lorna Youngs, Extension Entomology Assistant. Pullman, Washington.



Use pesticides with care. Read the label and follow its directions. Never smoke while using pesticides and avoid breathing the spray or dust. Wear natural rubber gloves when handling pesticides. Wash hands and face carefully with soap and water after applying. If insecticides are spilled on skin or clothing, remove contaminated clothing and wash skin thoroughly. Store pesticides in their original containers and be sure labels remain on the containers. Keep containers away from food or feed and out of reach of children or irresponsible persons.

