

Identifying Adult Hard Ticks Commonly Found on Humans in Oregon

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Because of the recent concern over the spread of Lyme disease, there has been increased demand for information in identifying the ticks responsible for transmitting the disease. This publication points out the difference in the two genera of ticks commonly found on humans in Oregon, provides information about their biology, and includes basic removal instructions.

Ticks Commonly Found in Oregon

There are approximately 20 species of hard ticks (family: Ixodidae) in Oregon. Of these, only four species are commonly found on humans:

- Western Black-Legged Tick (*Ixodes pacificus*)
- Rocky Mountain Wood Tick (*Dermacentor andersoni*)
- American Dog Tick (*Dermacentor variabilis*)
- Pacific Coast Tick (*Dermacentor occidentalis*)

In Oregon and most of the western U.S., the Western Black-Legged Tick is the only known vector of Lyme disease. The three species of *Dermacentor* and other kinds of ticks are not known to transmit Lyme disease.

The differences in the adult *Ixodes* tick from the adult *Dermacentor* tick are best seen with a dissecting microscope, although some characteristics are visible with a strong hand lens. Because nymphs and larvae are difficult to distinguish with certainty, we recommend you send these and adult ticks of other types to a specialist for positive identification.

Life Stages of Ticks

Adult male—dorsal shield covers entire dorsal (top) side, 3–6 mm (1/8–1/4 inch)

Adult female—dorsal shield covers only front half of dorsal side, 4–6 mm (3/16–1/4 inch)

Nymph—similar to female only smaller, 2–3 mm (1/8 inch)

Larva—similar to nymph, only 6 legs (adult and nymph 8 legs), very small 1 mm (1/16 inch)

Life History of Ticks

Female ticks deposit their eggs in litter and soil. Newly hatched larvae are very small, have only six legs, and mainly attach to small animals. After a blood meal, they drop off the host and change to an eight-legged nymph stage. The nymph stage usually attaches to small animals, but it may be found on larger hosts. After a blood meal, the nymph drops off and changes to an adult.

Females usually take a blood meal from a large animal; in the *Dermacentor* sp. females may reach 18 mm (3/4 inch) in length when fully engorged. The large blood meal is necessary to allow the eggs to develop. After a blood meal, the females drop off the host and lay eggs to start the cycle over. This cycle may take from one to several years depending on the species.

Male ticks may take small short-duration blood meals but spend most of their time searching for females.

In Oregon, adult ticks are active primarily in the spring and early summer, but they can be found through the fall season. Larvae and nymph stages also are active spring through fall, but often at different times than the adults. Because of their small size, larval and nymphal ticks often are difficult to detect even when attached.

When ticks are seeking a host (questing) they perch on low branches of shrubs or on tall grass, waiting to

attach to any passing object. Although some ticks are fairly selective about hosts, many will attach to almost any animal they encounter including mammals, birds, and reptiles.

Western Black-Legged Tick (*Ixodes pacificus*)

The Western Black-Legged Tick also is known as the Pacific Tick. It is common in western Oregon, and is found in California and southern Washington.

It is believed that only a small percentage (1%-5%) of the population of the Western Black-Legged Tick actually carries the bacterium responsible for Lyme disease. The immature stages (seed ticks) feed primarily on small animals, especially rodents which may harbor the disease, but they will feed on larger mammals. Adults generally feed on large mammals, including humans. Both adults and immatures may transmit the disease. The tick usually must be attached for 24 to 48 hours before it can pass the bacterium to humans.

The Deer Tick (*Ixodes dammini*) in the eastern U.S. and the Eastern Black-Legged Tick (*Ixodes scapularis*) in the southeastern U.S. are the other known vectors of Lyme disease in the United States. Both species are closely related to *I. pacificus*.

Other *Ixodes* Species

Fourteen species of ticks belonging to the genus *Ixodes* are known to reside in Oregon. About half of these are found only on birds; the others generally are found only on small mammals.

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Only the species, *I. pacificus*, is commonly found on large mammals, including humans. One other species, *Ixodes angustus*, also found in western Oregon, is occasionally found on humans. It is similar to *I. pacificus*, but it is smaller in size and is brown instead of black. It is suspected, but not proven, that other species of *Ixodes* may be able to transmit Lyme disease.

Dermacentor Species

These are probably the most common types of ticks in the western United States. Five species are found in Oregon, three of which are commonly found on humans. The Rocky Mountain Wood Tick (*D. andersoni*) is the most common tick east of the Cascades and occasionally is found in western Oregon. The immature stages feed primarily on rodents and other small mammals, but also will attack larger mammals. The adults generally feed on large mammals, including humans.

The Pacific Coast Tick (*D. occidentalis*) is similar in appearance and habits to *D. andersoni* but is common only in southwestern Oregon. The American Dog Tick (*D. variabilis*) is found throughout Oregon. The immature stages feed primarily on rodents. The adults feed on many kinds of large mammals, including humans, but are usually found on dogs. The Winter Tick or Elk Tick (*D. albipictus*) is found on deer, elk, and horses, but only rarely on humans; *D. parumapterus* is found only on rabbits.

As far as is known, *Dermacentor* ticks do not transmit Lyme disease, but they can transmit a variety of other diseases including spotted fever. Such cases are very rare in Oregon.

Other Kinds of Ticks

The Brown Dog Tick (*Rhipicephalus sanguineus*) has been found in the Portland metropolitan area and may be present elsewhere in Oregon. Its preferred hosts are dogs, but it will attack other animals. It rarely occurs on humans and is most commonly found in the ears of dogs. The Brown Dog Tick closely resembles a *Dermacentor* tick but is brown in color and the sides of the head are pointed.

Other kinds of hard ticks occasionally are brought into the state by humans or pets who traveled to other parts of the country. These ticks generally do not survive in Oregon. The other major group, the soft-bodied ticks (family: Argasidae), has only a few species found in Oregon and is seldom encountered.

How to Remove Attached Ticks

1. If possible, have someone else remove the tick from you.
2. Use tweezers or forceps rather than your fingers.
3. Grasp the mouthparts or head end of the tick as close to the skin as possible.
4. Gently pull the tick straight out, steadily and firmly.
5. The mouthparts are barbed like a harpoon and may break off in the skin. If they do, it is not cause for concern. They do not carry the bacterium and are no more harmful than a small sliver.

6. Wash hands and the bite area with soap and water; apply an antiseptic to the bite area.

7. Keep the tick specimen. You may need to have it identified if disease symptoms occur later. Place the tick in a small container of alcohol labelled with the date the tick was removed and the place it was picked up.

8. Use the same procedures and precautions when removing ticks from pets.

If you cannot positively identify which kind or stage of tick you have, send them to the address below. Place each specimen in a small tightly sealed container of alcohol. Be sure to include a return address and information on where and when the tick was found. There is no charge for this service.

We currently are unable to test individual ticks to determine if they carry the Lyme disease bacterium.

Insect Identification Service
Department of Entomology
Oregon State University
Cordley Hall 2046
Corvallis, OR 97331-2907
Ph: (503) 737-3151

Adult *Ixodes* sp. Ticks

Dorsal shield, head and legs solid black, remainder of body usually reddish

Palps elongate, paddle-shaped, narrowly attached at base

Anal groove surrounding anus, U-shaped

No *eyespots* at side of dorsal shield

No *festoons* at posterior end

Coxa 1 with a single, large, sharp spine

Female 4-5 mm in length unengorged, *male* 3-4 mm

Adult *Dermacentor* sp. Ticks

Dorsal shield silver-gray with reddish-brown markings, remainder of body brown

Palps short, stubby, broadly attached at base

Anal groove behind anus, not U-shaped

Clear *eyespots* at sides of dorsal shields

Festoons present at posterior end (also present in nymphs and larvae but poorly defined)

Coxa 1 with 2 large, blunt spines

Both sexes 5-6 mm in length unengorged

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