



Two female American dog ticks (*Dermacentor variabilis*) under the microscope. These ticks were submitted to our lab through the passive surveillance program. Photo by Mikenna Smith.

Terrified of ticks? Here's what you should know

If you live on a small acreage in Wyoming, you're probably already well acquainted with invasive plants creeping into your pasture, that delightfully persistent wind, and wildlife that treats your carefully planned landscape like an all-you-can-eat buffet.

But unlike elk, ground squirrels, or Canada thistle, ticks are quite obscure, sneaky little creatures. They don't announce their presence until one day you wake up with an uninvited visitor attached to you. Cue the heebie-jeebies of course, but should you be worried about getting sick?

Don't panic

Ticks are a normal, native part of Wyoming's ecosystems, particularly in grasslands and sagebrush habitats. Given the rural nature of our state, humans often encounter ticks as part of the natural environment.

As someone who studies ticks and tick-borne diseases for a living, my goal isn't to convince you that ticks are everywhere (they aren't), or to suggest avoiding time outdoors altogether (please don't). Instead, my work focuses on understanding *where* ticks are, *when* people are most likely to encounter them, and *which* risks matter most for Wyoming residents and recreationalists.

Understanding tick-borne diseases

Before diving in, it helps to define a few key concepts. A **tick-borne disease** occurs when a human or animal becomes infected after being bitten by a tick carrying a **pathogen**, i.e., a germ such as a virus or bacterium.

Ticks don't usually start out infectious, though. They acquire pathogens when they feed on infected wildlife. If that same tick later takes another blood meal, say from a person, it may be able to transmit that pathogen to them.

Wyoming Tick-Borne Diseases	Other Tick-Borne Diseases in the U.S. (Outside of Wyoming)
Colorado tick fever virus*	Lyme
Tick paralysis	Alpha-gal syndrome
Tularemia	Babesiosis
Rocky Mountain spotted fever	Bourbon virus
Q fever	Bovine theileriosis
	Ehrlichiosis
	Heartland virus
	Powassan virus
	Thrombocytopenia syndrome virus
	Hard & soft tick relapsing fevers**

* Sublette County has reported some of the highest incidence rates of Colorado tick fever virus infections in people in the United States.

** Soft tick relapsing fever has been documented in states surrounding Wyoming and is likely here. Further entomological research is needed.

Ticks that can both acquire and transmit a pathogen are called **competent vectors**. Importantly, not all ticks are competent vectors for all pathogens.

Many pathogens can only be transmitted by specific tick species. These species are considered to have **medical or veterinary significance**, while others pose little to no health risk. Understanding precisely which ticks live in Wyoming, and what they can transmit, matters far more than generalized or region-inappropriate information found online.

Health risks in Wyoming

Wyoming is home to several tick species of medical and veterinary significance, including the Rocky Mountain wood tick (*Dermacentor andersoni*), the American dog tick (*Dermacentor variabilis*), the brown dog tick (*Rhipicephalus sanguineus*), and soft ticks (*Ornithodoros* spp.). This list may change over time as ticks in other parts of the country continue to expand their geographic ranges.

Tick-borne pathogens are transmitted through tick saliva during feeding. Some can be transmitted within minutes, while others require several hours of attachment.

The medically significant tick species found in Wyoming are only competent vectors for a specific set of pathogens listed above, some of which, like Colorado tick fever virus, transmit within minutes.

Wyoming ticks are not capable of transmitting many of the tick-borne diseases found elsewhere in the United States, including the bacterium that causes Lyme disease. That's right—the tick species responsible

for transmitting Lyme disease is not currently found in Wyoming.

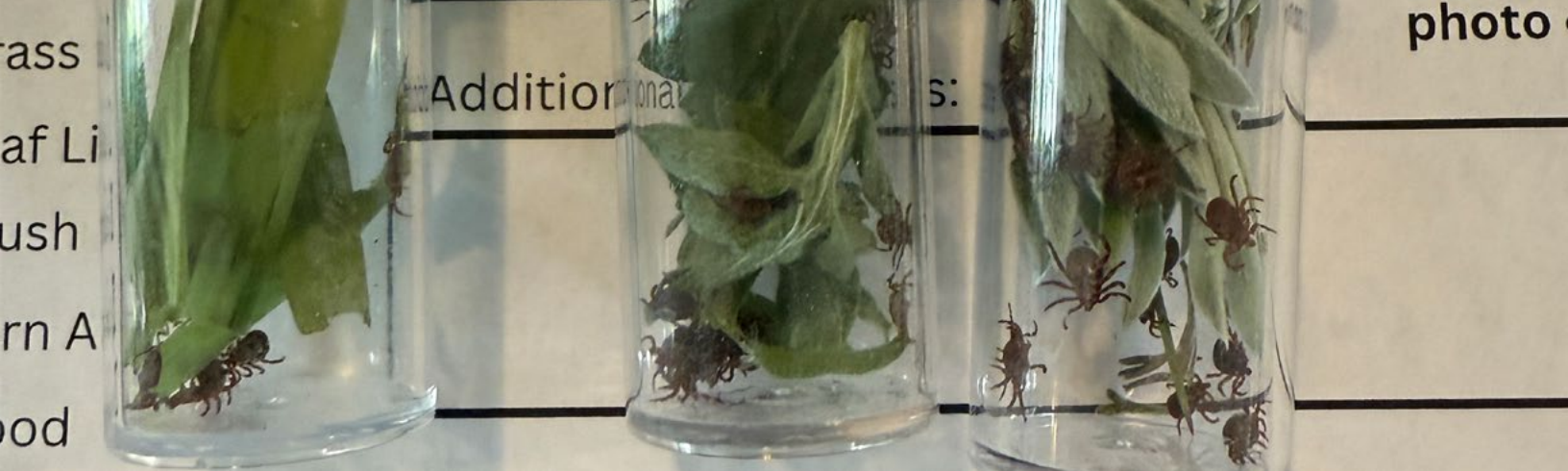
If you've been bitten by a tick and develop symptoms within a few weeks, contact your healthcare provider. Symptoms associated with tick-borne diseases in Wyoming may include fever or chills, muscle and joint aches, fatigue, headache, weakness, nausea, vomiting, numbness or tingling in the extremities, or loss of coordination. Less common but more severe symptoms can include rashes, encephalitis, meningitis, or hemorrhagic fever.

Note that testing ticks that have bitten you for pathogens is *not* recommended by the CDC as a diagnostic tool. Blood-fed ticks are prone to false negatives during lab tests. Instead, the CDC recommends identifying the tick species when possible and sharing that information, along with symptoms,

Tick removal

Some pathogens—like Colorado tick fever virus—can transmit within minutes of attachment. Remove attached ticks as soon as possible to reduce the risk of disease transmission. Use clean, fine-tipped tweezers to grasp the tick as close to the skin as possible. Pull upward with steady, even pressure. Do not twist, jerk, or crush the tick.

Clean the bite area and your hands with soap and water or rubbing alcohol. If you develop symptoms within a few weeks, see a healthcare provider and tell them when and where the tick bite occurred.



Male and female Rocky Mountain wood ticks (*Dermacentor andersoni*) collected from a field site in Teton County during the 2025 tick blitz by TCWP Supervisor Erika Edmiston. Photo by Erika Edmiston.

Tick surveillance

Tick-borne diseases are often underreported or misdiagnosed in the Rocky Mountain region. In 2023, Teton County Weed & Pest District initiated a tick surveillance program to better understand tick distribution and public health risk in Wyoming. The program accepts ticks from across the state for species identification and offers a citizen science option for Wyoming residents interested in contributing to tick research. Learn more at www.tcweed.org/vectorborne.

with your healthcare provider. If you need help with species identification, contact Teton County Weed & Pest District.

Prevention tactics

Now, let's talk about prevention. Take it from someone who spends a lot of time chasing ticks through sagebrush but has never actually been bitten—these strategies work.

Know where and when to expect ticks. In Wyoming, ticks are commonly found in grassy and shrubby environments. Hibernating ticks come out as soon as the snow recedes. Tick numbers peak in May and June, but you can be bitten any time from approximately March through October depending on the timing of first and last frosts and snowfall for the year.

Wear loose-fitting, long clothing when spending time in tick habitat, including long sleeves and pants. Tuck your pants into your socks at the ankle. Ticks crawl; they don't fly, jump, or burrow. When you brush past low vegetation, ticks latch onto clothing and crawl upward, looking for a hidden place to bite, such as the armpits, groin, waistband, scalp, or behind the knees. Keeping ticks on the outside of your clothing makes them much easier to spot.

Use an **EPA-registered insect repellent** and reapply as directed. EPA registration matters because it means these products have been scientifically tested for human safety and effectiveness. EPA-registered repellents include DEET, picaridin, IR3535, 2-undecanone, oil of lemon eucalyptus (OLE), and para-menthane-diol (PMD). Clothing can also be treated with **permethrin**, which acts as both a repellent and insecticide. Do not apply permethrin directly to skin.

Conduct routine tick checks during and after time outdoors, paying close attention to hidden areas such as behind the ears, under waistbands, in the groin area, and under the arms.

Showering within two hours of coming indoors can help wash off unattached ticks and provides another opportunity for a thorough tick check. **Tumble dry clothes on high heat** for at least 10 minutes to kill any ticks on clothing.

While tick-borne diseases can occur in Wyoming, there are tried and true methods to tick bite prevention. Don't let ticks prevent you from enjoying the outdoors!

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Tick expert **Mikenna Smith** is an entomologist with the Teton County Weed & Pest District. Contact her at msmith@tcweed.org or (307) 733-8419, ext. 110, to get involved with tick-related citizen science efforts—or to calm your panic after reading internet horror stories about tick-borne diseases.