

Tick Safety

Minnesota's forests, brushlands, and grassy fields host several tick species, most notably the Blacklegged Tick ("Deer Tick"), which serves as the primary vector for Lyme disease and other serious tick-borne illnesses. Because field operations frequently require off-trail navigation and prolonged exposure to dense vegetation, proactive prevention and proper removal techniques are vital occupational safety practices. This fact sheet outlines essential identification traits, personal protective protocols, step-by-step extraction methods, and University reporting procedures to help keep UMN field personnel safe and healthy throughout the season.

Common Tick Species in Minnesota

Minnesota is home to three primary tick species that interact with humans (Figure 1). Knowing how to tell them apart is essential because they carry different risks. Immature ticks (nymphs and larva) are hard to identify by species and especially dangerous due to challenges in seeing them and they are efficient at transmitting diseases.

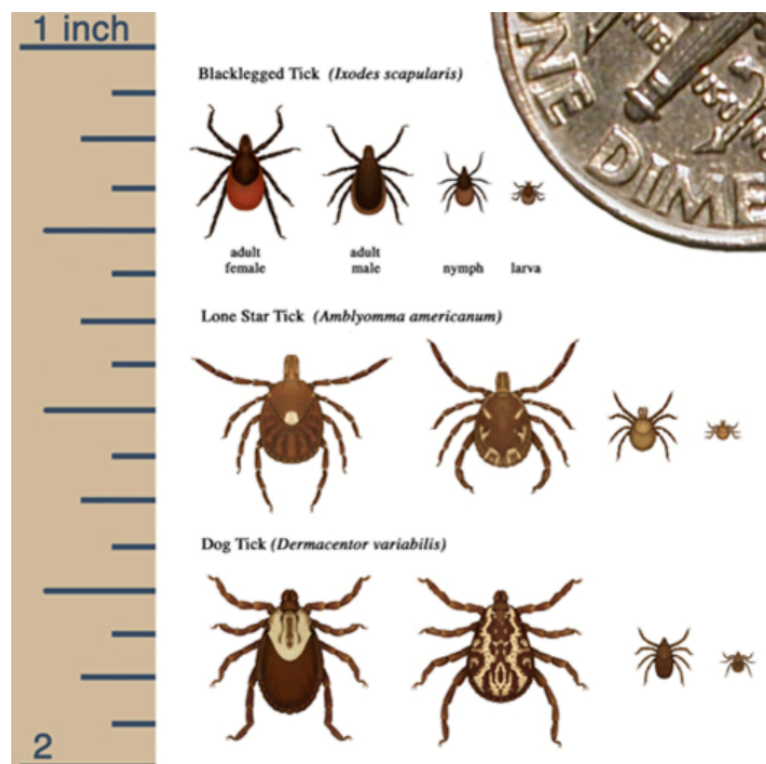


Figure 1. Minnesota Tick Species & Size Comparison ([MN Department of Health](https://www.health.state.mn.us/diseases/ticks/))

IMPORTANT: The longstanding advice that removing an attached tick within 24 hours prevents disease transmission is no longer considered adequate. This is because some emerging diseases may be transmitted shortly after tick attachment.

Table 1. Core Tick Species and Their Associated Pathogens in Minnesota

Features	Blacklegged Tick ("Deer Tick")	Lone Star Tick	Dog Tick ("Wood Tick")
Relative Size	Very small (Nymphs are poppy-seed size; Adults ~ sesame seed)	Medium-sized (Slightly smaller than dog ticks)	Larger (~1/8 inch unfed; noticeable on skin/clothes)
Appearance	Dark legs; reddish-orange body with black shield (<i>scutum</i>)	Female has a single distinct white/yellow spot on back	Dark brown body with whitish to yellowish mottled patterns
Primary Habitat	Wooded, brushy areas and leaf litter	Woodlands and thick brush (rare/sporadic in MN)	Grassy fields, trail edges, and open brush
Associated Health Risks	High risk: Transmits Lyme disease, Anaplasmosis, Babesiosis, Powassan virus	Transmits Ehrlichiosis; can induce Alpha-gal syndrome (red meat allergy)	Low risk in MN: Can transmit Rocky Mountain Spotted Fever / Tularemia (rare)

Table 2. Tick-Borne Pathogens and Potential Time to Transmission

Tick Acquired Disease	Causative Agent	Potential time to transmission after attachment (bite)
<u>Alpha-Gal Syndrome</u>	Allergy triggering molecule	Immediately
<u>Powassan Virus Disease</u>	Virus	15 minutes
<u>Tularemia</u> <u>Anaplasmosis</u> <u>Rocky Mountain Spotted Fever</u>	Bacteria	4 hours
<u>Lyme</u> <u>Ehrlichiosis</u>	Bacteria	24 hours
<u>Babesiosis</u>	Parasite	24 hours

Preventative Fieldwork Practices

Transmission of tickborne disease can only occur if a tick becomes attached by biting. Following the Preventative Fieldworks Practice below and performing frequent tick checks to remove and destroy them while they are still crawling prevents transmission.

Personal Protective Clothing:

- **Seal your base layers:** Tuck long pants directly into high socks or field boots, and tuck long-sleeved shirts into your waistband.
- **Wear light-colored clothing:** Dark ticks stand out much faster against tan, white, or light gray fabrics.

Chemical Protection:

- **Permethrin (0.5%):** Apply to field boots, pants, and gear. Permethrin kills ticks on contact and survives multiple laundry cycles. Do not apply directly to skin.
- **EPA-registered repellents:** Apply DEET (20–30%), Picaridin, or Oil of Lemon Eucalyptus (OLE) to exposed skin.

Field Practices and Post-Work Routine:

- **Stick to clear pathways:** Walk in the center of trails and avoid brushing against high grass, dense ferns, or overgrown vegetation whenever possible.
- **Frequent partner checks:** Inspect pants and shirt sleeves every 1–2 hours during field operations.
- **Post-field clothing care:** Upon returning from the field, immediately place clothing into a dryer on high heat for at least 10 minutes (60 minutes if damp/wet) to kill lingering ticks.
- **Full-body check & shower:** Shower within 2 hours of field return. Pay close attention to hair/scalp, behind ears, armpits, belly button, belt line, groin, and back of knees.

Removal and Preservation/Destruction of Crawling Ticks:

- Use tape to catch the tick and then fold tape to seal the tick within
- Seal the tick tightly inside of a zipper closure bag
- Submerge the tick in rubbing alcohol
- Flush the tick down a toilet (not just dropped into the water)
- NEVER crush a tick with your fingers because pathogens may be released and come into contact with broken skin or mucous membranes, potentially resulting in disease transmission.

Safe Removal of Attached Ticks and Response Procedures

Prompt removal of an attached tick is important because the longer a tick stays attached the greater the risk of disease transmission (Figure 2).

- **Grasp close to skin surface:** Position fine-tipped tweezers as close to your skin surface as possible, grasping the tick firmly by its mouthparts. Avoid squeezing the soft body, which can force fluids into the bite site.
- **Pull straight upward with steady pressure:** Pull straight out using slow, continuous, upward pressure. Do not twist or jerk, as this can break off the mouthparts in the skin. (If mouthparts remain, leave them alone to heal or remove gently with tweezers).
- **Disinfect the bite location:** Thoroughly wash the bite area and your hands with soap and warm water, rubbing alcohol, or an iodine scrub.
- **Take a photo of the tick:** If you do need to seek medical care a photo of the tick may help the health care provider identify the species and risk of transmitted diseases. Refer to one of the methods listed in the previous section for preserving the tick.
- **Report the incident:** University workers who sustain tick bites while working should notify their supervisor and complete a [First Report of Injury](#). If medical attention is needed, visit the [Clinical Services](#) website to find a clinic in the area to visit.
- **Monitor for symptoms for 30 days:** Watch the bite area for 3 to 30 days. Seek medical evaluation if you develop a bull's-eye rash, expanding red patch, fever, fatigue, or muscle/joint aches.

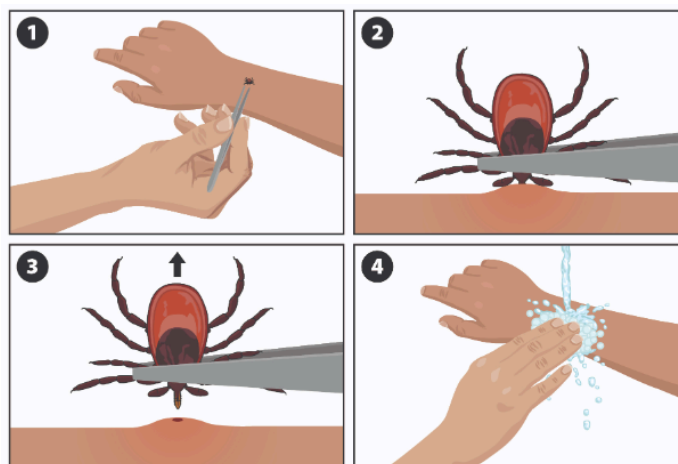


Figure 2. How to Remove a Tick Using Tweezers ([Centers for Disease Control](#))

Unapproved Removal Methods:

Do not use petroleum jelly, heat, nail polish, or other substances to try and make the tick detach from the skin. This may agitate the tick and force infected fluid from the tick into the skin.