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Ixodes scapularis Tick Parasitizing Dog in Dawson County, Montana, USA, 2023

Appendix

The *Ixodes* ticks in Montana are 3-host species, each life stage feeding on a different individual host. Most of those ticks parasitize small- to medium-sized rodents, small carnivores, lagomorphs including rabbits and pikas, and, in 1 case, birds (Appendix Table) (1–4). Humans rarely encounter those ticks unless they are hunting or trapping the ticks' hosts. Only a single nymph of 1 species (*I. spinipalpis*) has been recovered from a human in Montana (5), which likely resulted from the individual hunting rabbits or hares. Similar to *I. scapularis* in this report, 1 other species, *I. kingi*, has been recovered on rare occasions from domestic dogs.

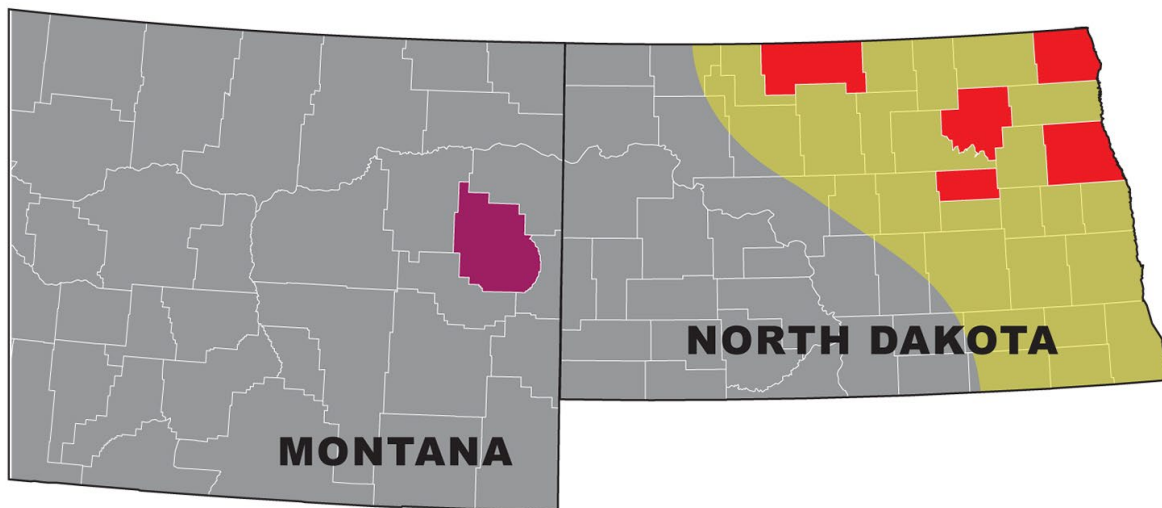
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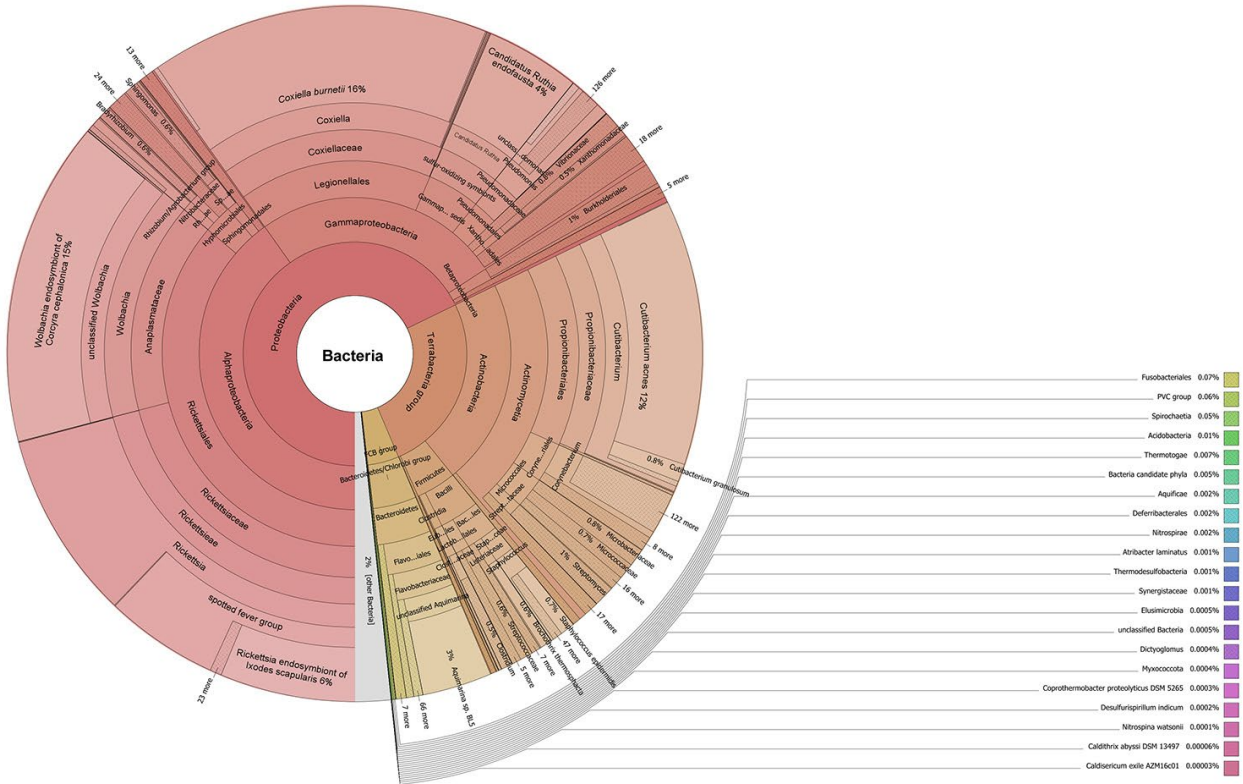
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Appendix Table. Species of *Ixodes* ticks and their recorded hosts in Montana

Species	Hosts in Montana
<i>Ixodes angustus</i>	Red squirrel (<i>Tamiasciurus hudsonicus</i>), bushy-tailed woodrat (<i>Neotoma cinerea</i>)
<i>I. hearlei</i>	Golden mantled ground squirrel (<i>Callospermophilus lateralis</i>)
<i>I. howelli</i>	Cliff swallow (<i>Petrochelidon pyrrhonota</i>)
<i>I. kingi</i>	Carnivores, rodents, dogs
<i>I. marmotae</i>	Yellow-bellied marmot (<i>Marmota flaviventris</i>)
<i>I. ochotonae</i>	Pika (<i>Ochotona princeps</i>)
<i>I. sculptus</i>	Ground squirrels (<i>C. lateralis</i> , <i>Urocitellus</i> spp.), northern pocket gopher (<i>Thomomys talpoides</i>)
<i>I. spinipalpus</i>	Mountain cottontail rabbit (<i>Sylvilagus nuttallii</i>)
<i>I. texanus</i>	American marten (<i>Martes americana</i>), weasels (<i>Mustella</i> spp.), golden mantled ground squirrels (<i>C. lateralis</i>)



Appendix Figure 1. Location of *Ixodes scapularis* specimen in study of tick parasitizing dog in Dawson County, Montana, USA, 2023. Map of North Dakota and eastern Montana indicates Dawson County (purple), where the tick specimen originated and 5 counties in North Dakota that have established populations of *I. scapularis* (red). Yellow shading indicates the distribution of this tick species predicted by the Centers for Disease Control and Prevention in 2023, and the map was derived from their website showing *I. scapularis* surveillance (<https://www.cdc.gov/ticks/data-research/facts-stats/blacklegged-tick-surveillance.html>).



Appendix Figure 2. Analysis of the tick specimen's microbiome from the *Ixodes scapularis* tick parasitizing dog in Dawson County, Montana, USA, 2023. Chart summarizes a metagenomic scan of bacteria by using Kraken2 (6) and mapping to a database containing all viruses, bacteria, archaea, protozoa, and fungi available in RefSeq (<https://www.ncbi.nlm.nih.gov/refseq>) as of September 2024. Percentages correspond to the percentage of reads derived from bacteria that were uniquely assigned to that taxonomic level. Six percent of all bacterial reads (340,000 reads) mapped to the *Rickettsia* endosymbiont of *I. scapularis*. This bacteria sp. has been renamed *Rickettsia buchneri* (7) and is believed to be specific to *I. scapularis* ticks.