VERMONT
DEPARTMENT OF HEALTH

2021 Tick Pathogen Surveillance Report

September 2023

A systematic tick surveillance program was initiated in 2018 by the Vermont Department of Health (VDH) in partnership with the Vermont Agency of Agriculture, Food & Markets (VAAFM) to track blacklegged ticks, *Ixodes scapularis*, and the pathogens they carry. The blacklegged tick is responsible for transmitting over 99% of all tickborne disease cases reported in Vermont.

Ticks are collected in the spring and fall in locations around the state, then identified by species, life stage (nymph, adult), and sex (male, female). Blacklegged ticks are then tested for four tickborne pathogens that cause human illness in Vermont: *Borrelia burgdorferi* (Lyme disease), *Anaplasma phagocytophilum* (anaplasmosis), *Babesia microti* (babesiosis), and *Borrelia miyamotoi* (Hard Tick Relapsing Fever). County-level tick infection prevalence and density estimates were calculated based on sampling sites within those counties.

KEY POINTS

- **4,796 ticks were collected from 48 sites across 12 counties.**
- **92% of the ticks collected were blacklegged ticks.**
- **Over half of all blacklegged ticks tested were infected with at least one pathogen; *Borrelia burgdorferi* was the most common.**

Most humans are infected by bites from immature ticks called nymphs because they are tiny (less than 2 mm) and difficult to see; they feed during the spring and summer months. Adult ticks are much larger and are more likely to be discovered and removed before they have time to transmit pathogens to humans; they are most active during the fall.

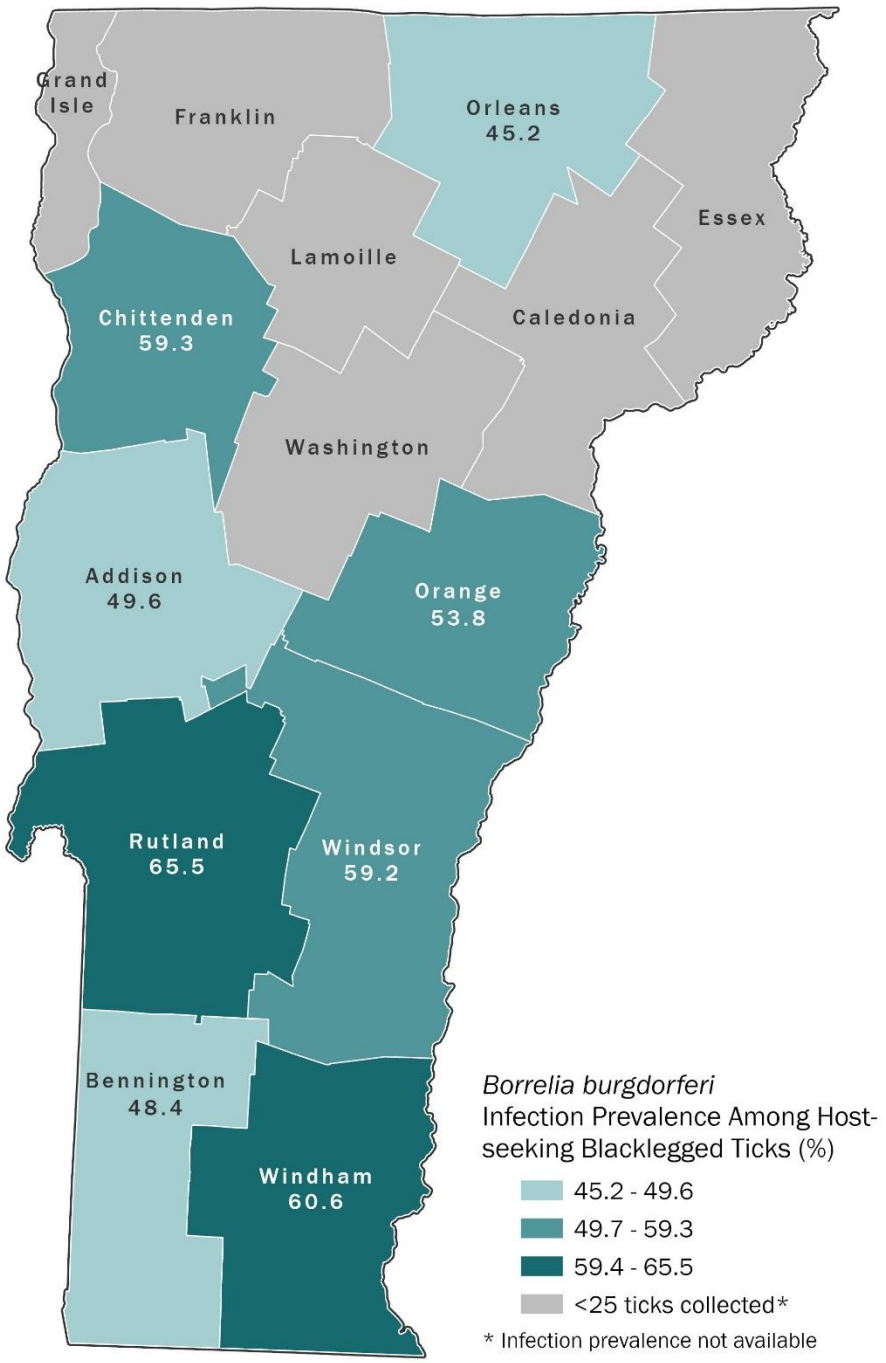
In 2021, 1,678 blacklegged ticks were tested for four pathogens that cause human illness; *Borrelia burgdorferi* was the most common.

	Adults	Nymphs	All Life Stages
Ticks tested from spring (n)	380	147	527
Ticks tested from fall (n)	1,150	1	1,151
Total ticks tested (n)	1,530	148	1,678
Borrelia burgdorferi (%)	57%	32%	54%
Anaplasma phagocytophilum (%)	9%	4%	9%
Babesia microti (%)	9%	3%	8%
Borrelia miyamotoi (%)	1%	0%	1%

Borrelia burgdorferi (Lyme disease)

Lyme disease is the most commonly reported tickborne disease in Vermont. It is caused by the bacterium, *Borrelia burgdorferi*. Most human cases are reported in June, July, and August following peak blacklegged tick nymph activity.

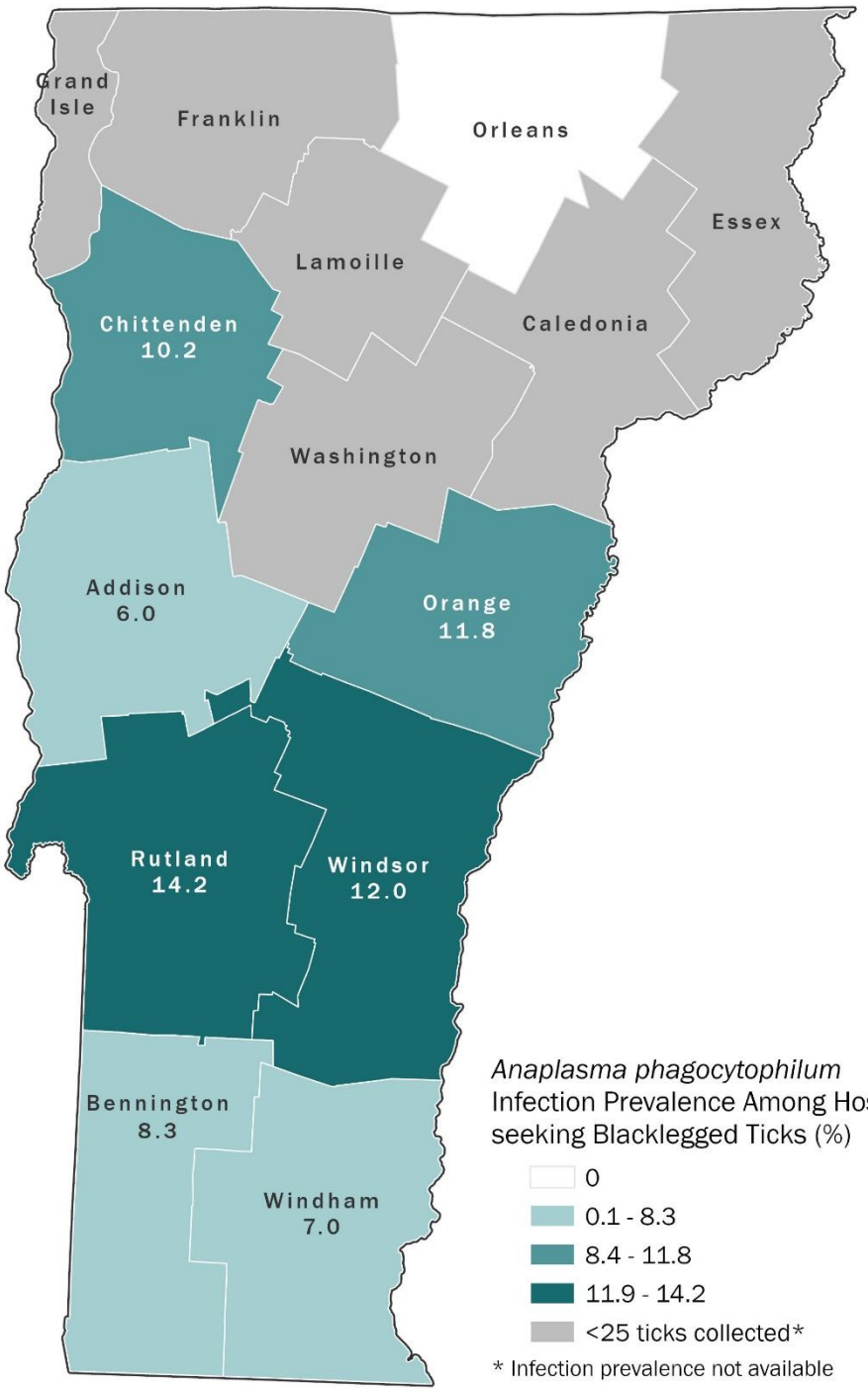
In 2021, Rutland County had the highest *Borrelia burgdorferi* infection prevalence among host-seeking (adult females and nymphs) blacklegged ticks.



Anaplasma phagocytophilum (anaplasmosis)

Anaplasmosis is the second most reported and fastest emerging tickborne disease in Vermont. It is caused by the bacterium, *Anaplasma phagocytophilum*.

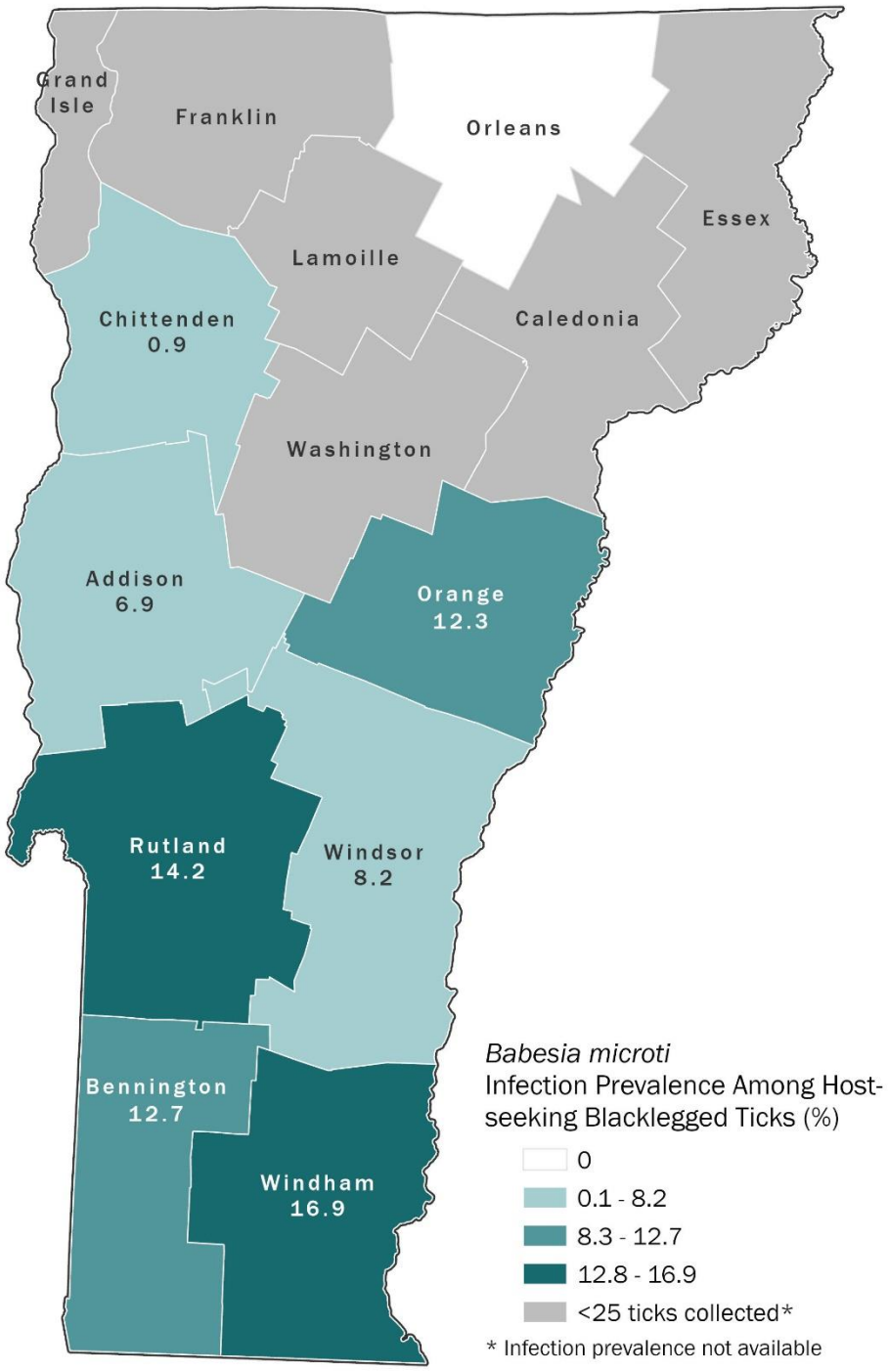
In 2021, Rutland County had the highest *Anaplasma phagocytophilum* infection prevalence among host-seeking (adult females and nymphs) blacklegged ticks.



Babesia microti (babesiosis)

Babesiosis is the third most reported tickborne disease in Vermont. In the Northeast, it is caused by a microscopic blood parasite called *Babesia microti*.

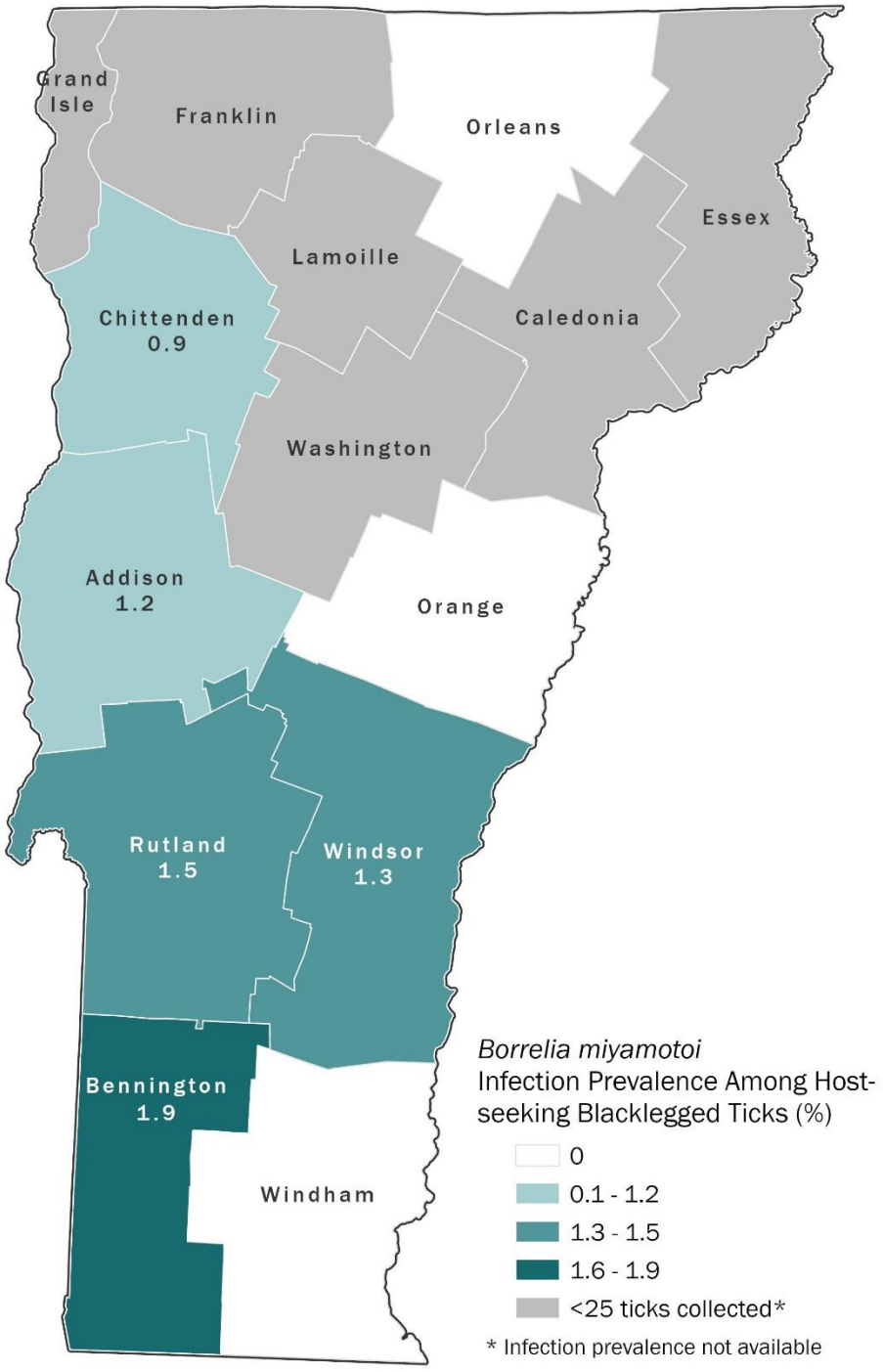
In 2021, Windham County had the highest *Babesia microti* infection prevalence among host-seeking (adult females and nymphs) blacklegged ticks.



Borrelia miyamotoi (Hard Tick Relapsing Fever)

Borrelia miyamotoi is a bacterium most recently recognized to cause tickborne disease in humans. The first infection in a Vermont resident was reported in 2016.

In 2021, Bennington County had the highest *Borrelia miyamotoi* infection prevalence among host-seeking (adult females and nymphs) blacklegged ticks.



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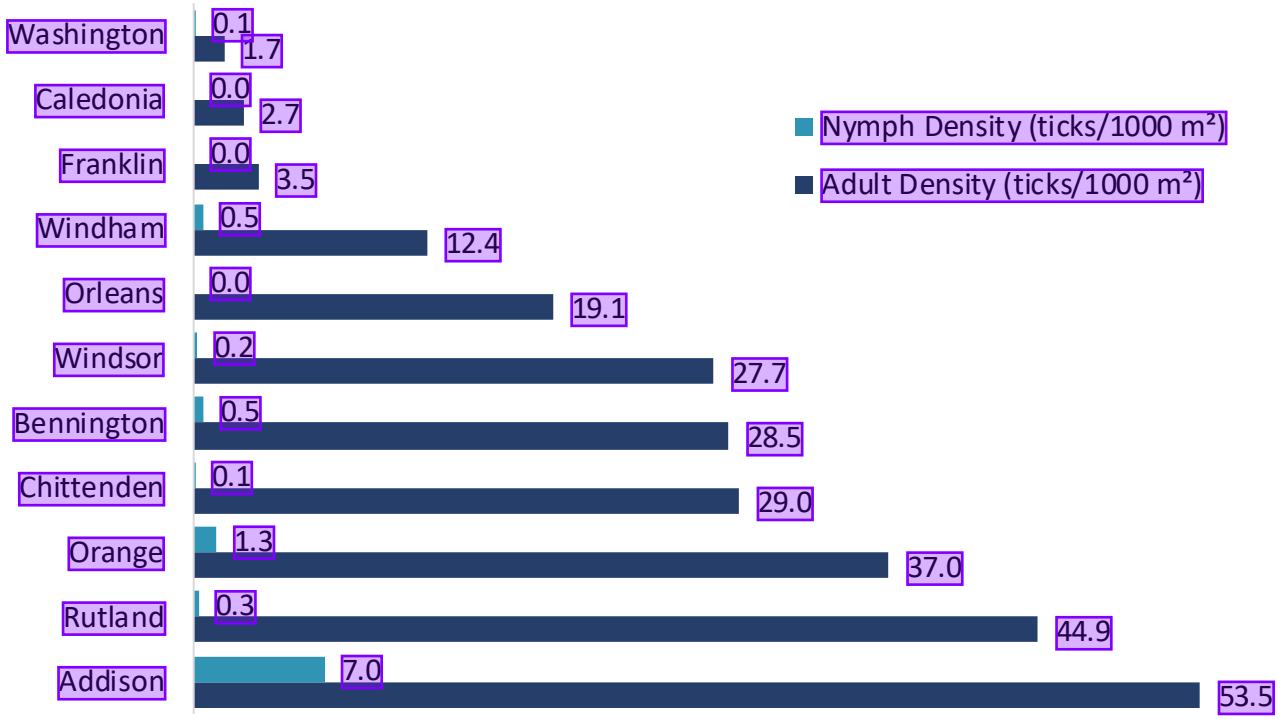
In 2021, Addison County had the highest density (per m²) of adult ticks and the highest density (per m²) of nymphal ticks.



Key Takeaways

Over 99% of all tickborne disease cases reported to the Vermont Department of Health are caused by the blacklegged tick. Infected blacklegged ticks capable of spreading disease are most common in the southern half of Vermont. The best way to prevent tickborne disease is to prevent tick bites.

Take action to reduce your risk of infection. Wear repellant containing up to 30% DEET, check your body and pets daily for ticks, and limit your exposure to ticks and tick habitat.

BE TICK SMART

PROTECT · CHECK · REMOVE · WATCH

For more information about tick bite prevention: www.healthvermont.gov/disease-control/tickborne-diseases/prevent-tick-bites-tickborne-diseases

For more information about ticks in Vermont: www.healthvermont.gov/disease-control/tickborne-diseases/information-ticks-vermont

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