



Ticks & Tickborne Diseases of Minnesota

Vectorborne Diseases Unit

Last Updated May 2023

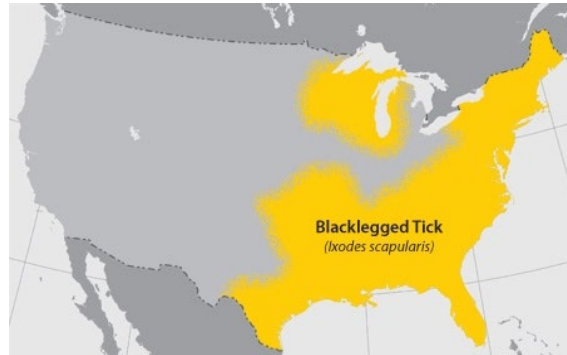
What is a tickborne disease and why should you care about it?

- People can get a tickborne disease when they are bitten by a tick that is infected with a disease agent
- The number of people getting tickborne diseases is increasing throughout the United States, including Minnesota
- Personal protection methods can help keep you safe from tick bites and tickborne diseases while enjoying healthy outdoor activities

Goals of Presentation

- Be able to recognize ticks of public health concern in MN
- Be aware of tickborne diseases
- Recognize basic signs and symptoms
- Seek early diagnosis and treatment
- Know when and where tickborne disease risk is highest
- Practice prevention methods
- Know who to contact for more information

Ticks of Public Health Concern in Minnesota



Blacklegged (Deer) Tick

- Lyme disease
- Ehrlichiosis
- Anaplasmosis
- Powassan virus
- Babesiosis
- Relapsing fever



American Dog (Wood) Tick

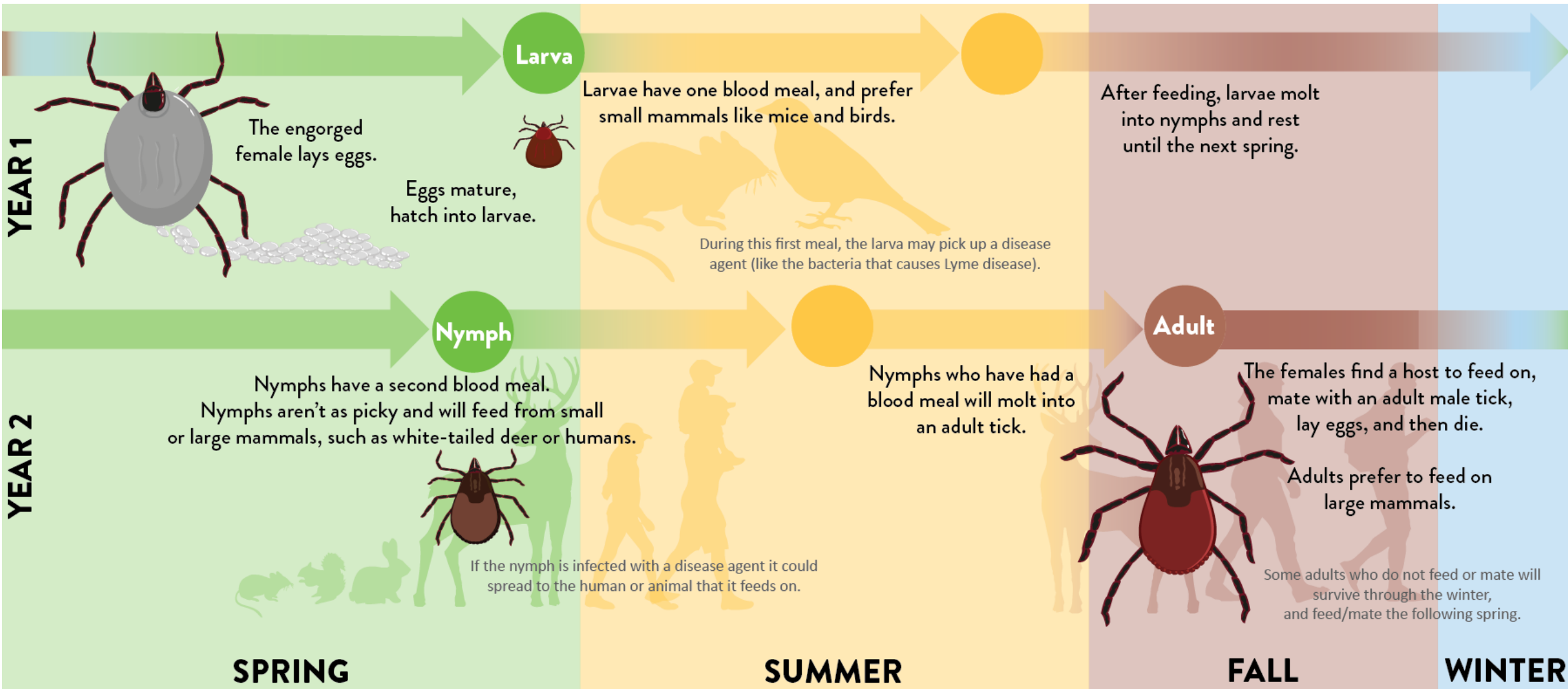
- Spotted Fever Group bacteria
- Tularemia



Lone Star Tick

- Ehrlichiosis
- Tularemia

Blacklegged Tick Life Cycle



Blacklegged Tick Life Stages



Nymph



Larva



Adult (female)

Engorged Adult Female Blacklegged Tick



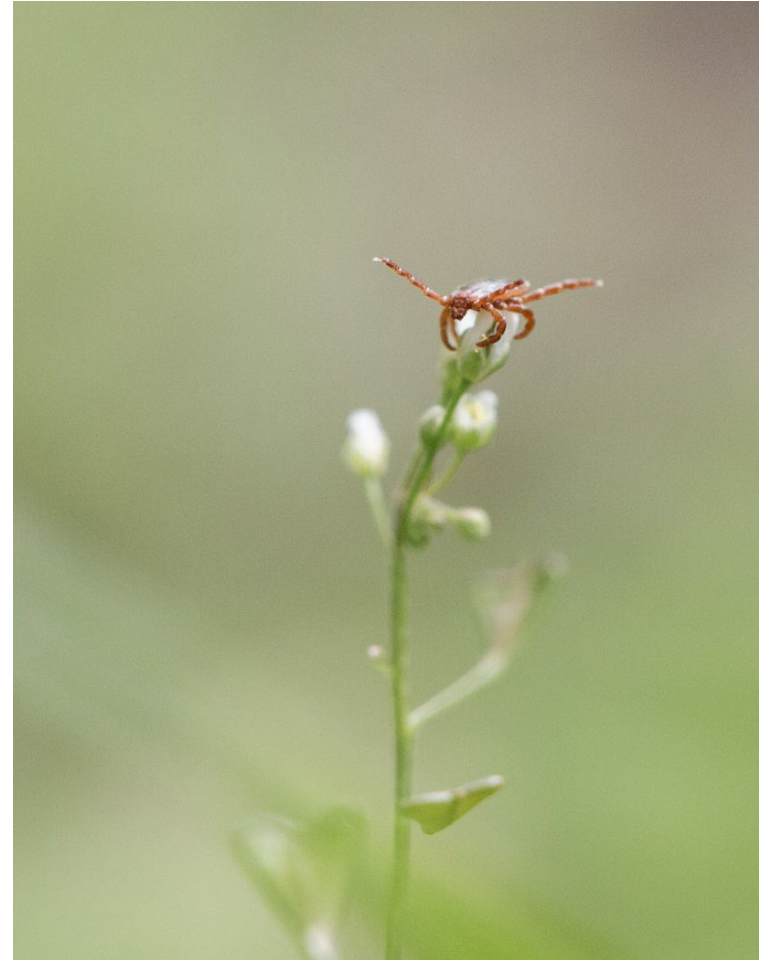
Blacklegged Tick Questing

- Searches for a host from the tips of low-lying vegetation
- Sense body chemicals and other cues from potential hosts, like heat, moisture, and vibrations
- Climbs onto a person or animal near ground level and then finds a place to attach



Blacklegged Ticks Do NOT...

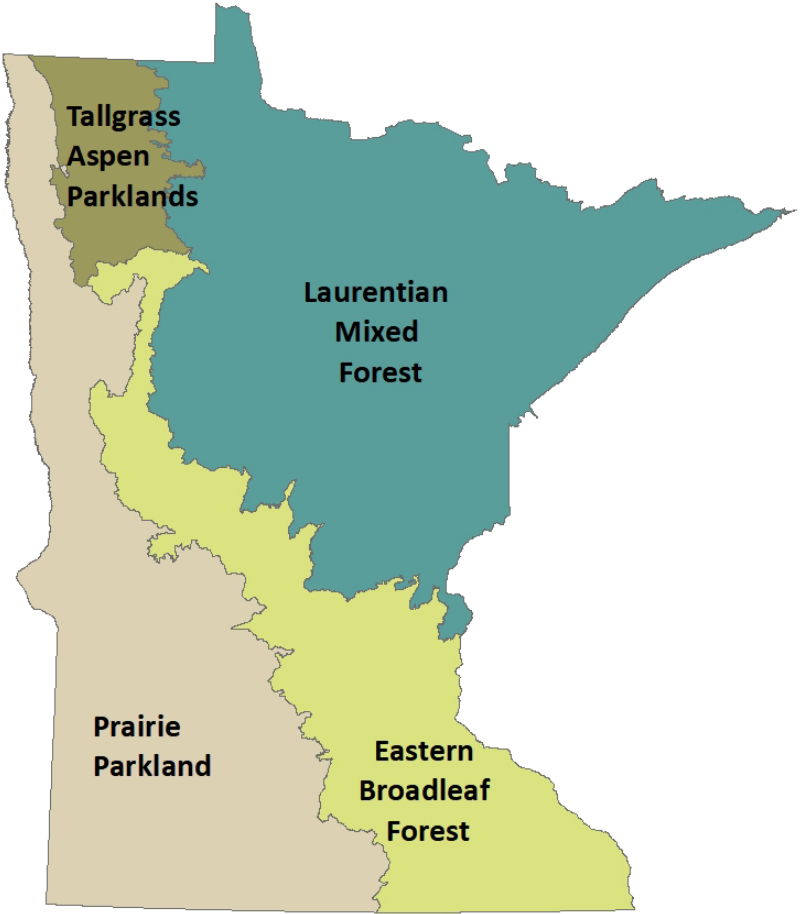
- Jump
- Fly or glide through the air
- Fall from treetops or high branches
- See



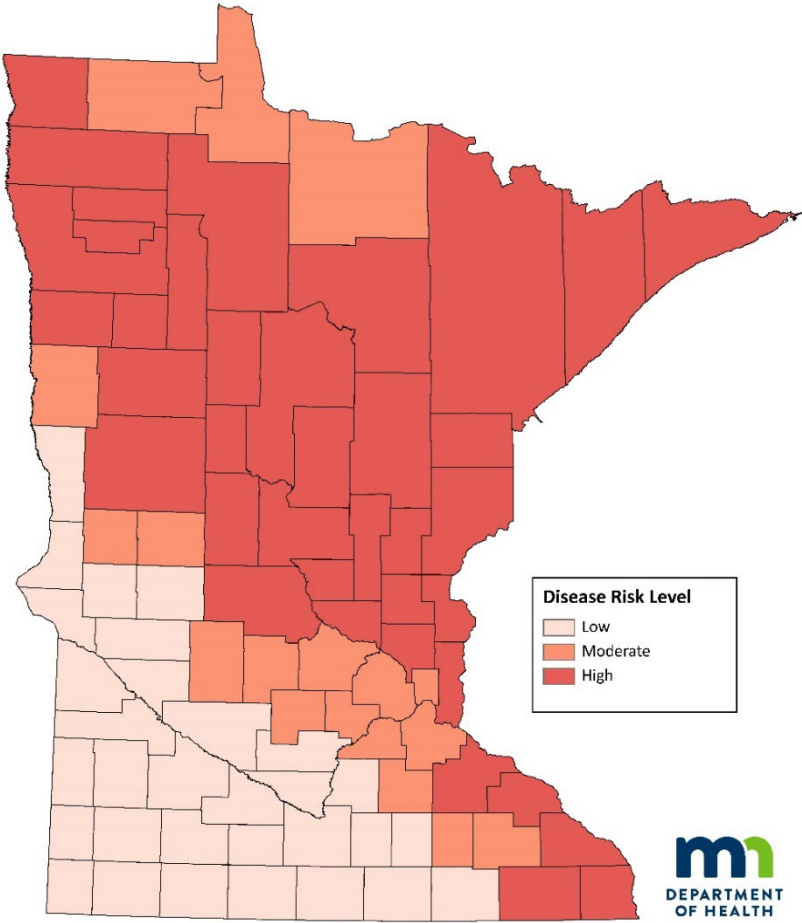
Blacklegged Tick Habitat



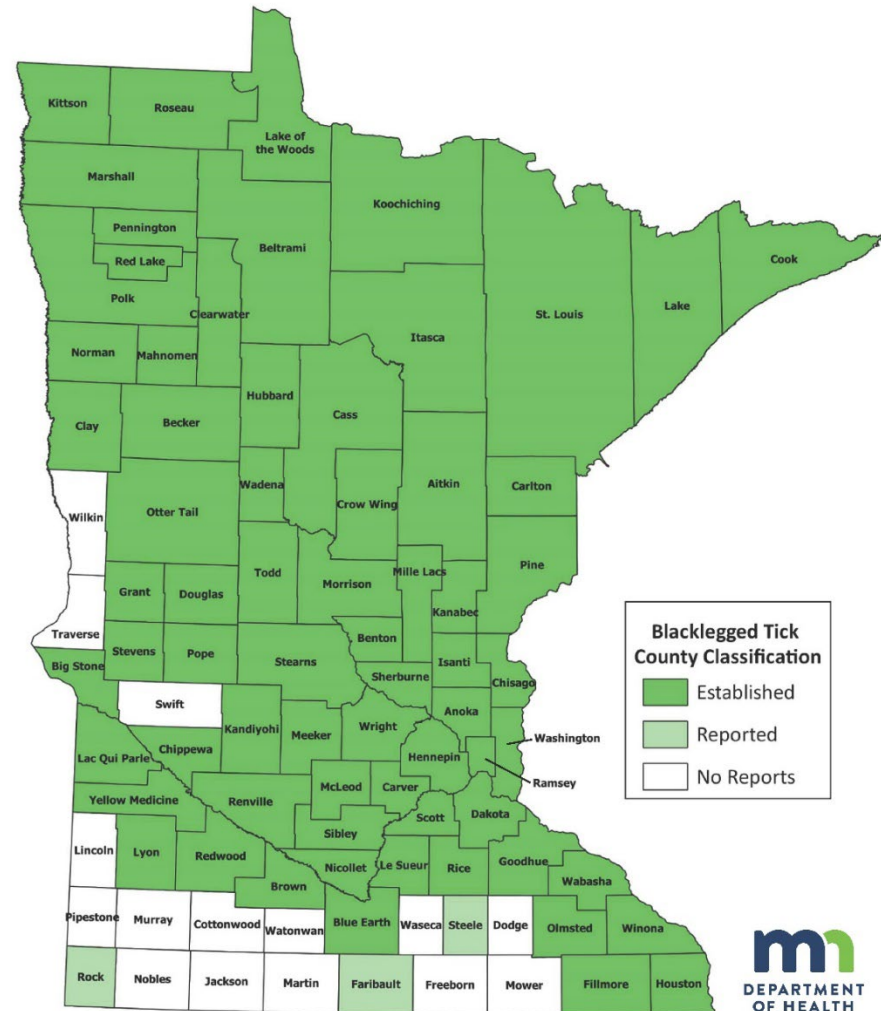
Tickborne Disease Risk in Minnesota



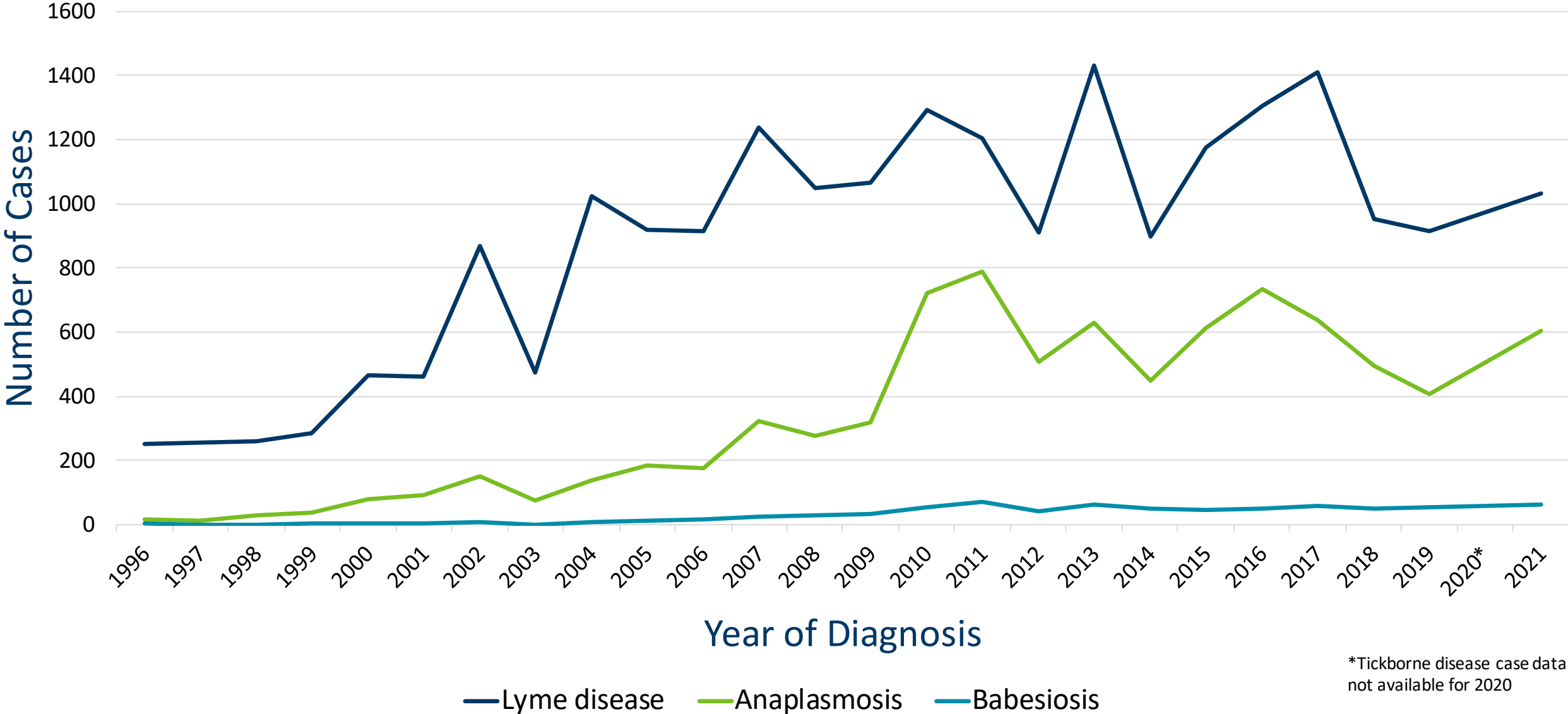
Source: Ecological Sections of Minnesota, Minnesota Department of Natural Resources (DNR)



Distribution of Blacklegged Tick Populations by County in Minnesota



Reported Tickborne Disease Cases in Minnesota, 1996-2021



*Tickborne disease case data not available for 2020

What are the symptoms of a tickborne disease?

- Many tickborne diseases have similar symptoms
- Initial symptoms usually show up within 2-4 weeks of being bitten by an infected tick
- Watch for symptoms like:
 - Rash
 - Fever
 - Headache
 - Fatigue
 - Muscle or joint aches

How are tickborne diseases diagnosed?

- If you think that you may have a tickborne disease, contact your health care provider as soon as possible
- Your health care provider can determine if you have a tickborne disease based on your:
 - History of being around wooded or brushy areas (where ticks may live)
 - Physical examination
 - Laboratory tests

Are tickborne diseases treatable?

- Most tickborne diseases are treatable
- For most people, the prognosis is good and symptoms go away after treatment
- Talk with your health care provider about managing symptoms that have not resolved after treatment

Lyme Disease

- *Borrelia burgdorferi*
- **Symptoms**
 - Characteristic Rash (erythema migrans)
 - Fever
 - Muscle or joint pain
 - Fatigue
- **Diagnosis**
 - History of exposure to ticks or wooded areas
 - Physical examination
 - Laboratory testing
- **Treatment**
 - Antibiotics



Anaplasmosis

- *Anaplasma phagocytophilum*

- **Symptoms**

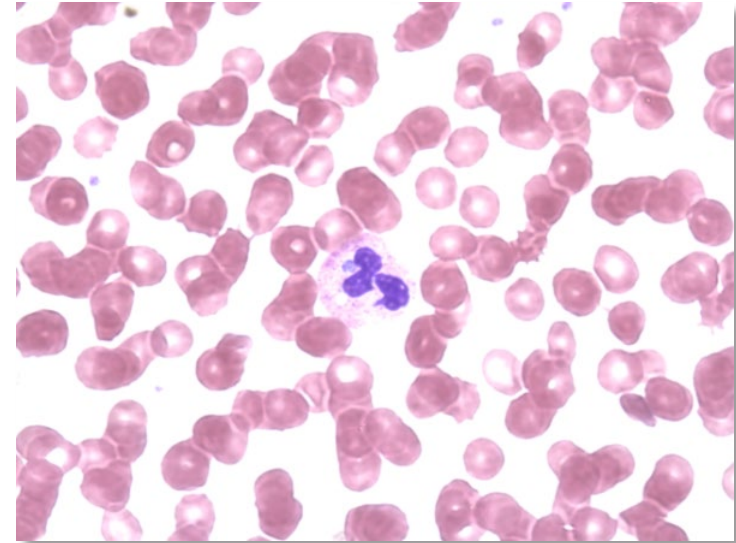
- Fever
- Severe headache
- Muscle or joint pain
- Severe complications and death possible

- **Diagnosis**

- History of exposure to ticks or wooded areas
- Physical examination
- Laboratory testing

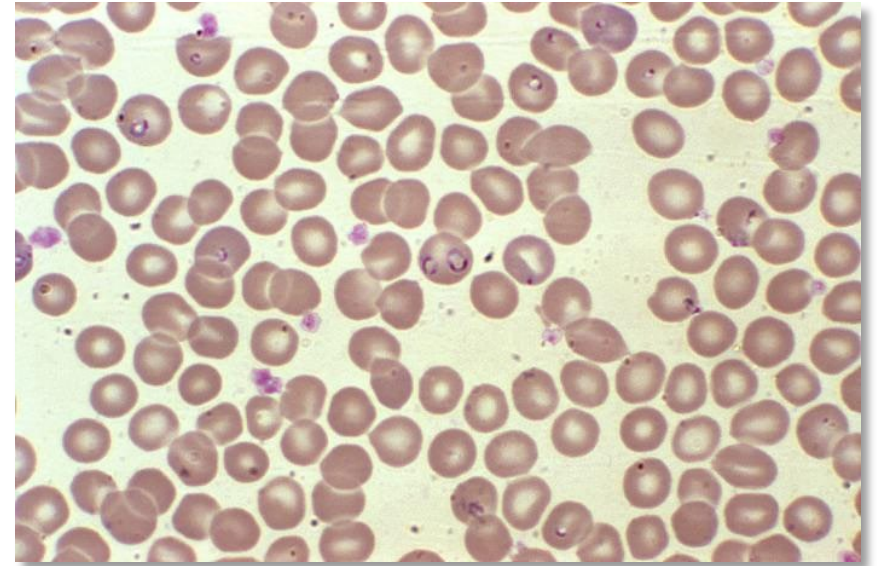
- **Treatment**

- Antibiotics



Babesiosis

- *Babesia microti*
- **Symptoms**
 - Fever
 - Headache
 - Fatigue
 - Severe complications and death possible
- **Diagnosis**
 - History of exposure to ticks or wooded areas
 - Physical examination
 - Laboratory testing
- **Treatment**
 - Patients without symptoms may not require treatment
 - Combination of anti-protozoal and antibiotic



Other Emerging Pathogens?

- Powassan virus
- *Ehrlichia muris eauclairensis*
- *Borrelia mayonii*
- *Borrelia miyamotoi*
- *Rickettsia rickettsii*
- *Francisella tularensis*

Protect Yourself from Tickborne Diseases

1) Know when and where you're at risk

- Primarily Mid-May through mid-July
- Wooded and brushy areas – Blacklegged tick
- Grassy or wooded areas – American dog tick

2) Wear EPA-registered bug spray

- DEET 20-30% on skin or clothing
- Permethrin 0.5% on clothing

3) Check yourself for ticks

- Undress and shower after being outdoors
- Check at least once a day
- Remove ticks ASAP!



How to Remove a Tick

If you find a tick on yourself, remove the tick as soon as possible.

- Prompt tick removal is important in order to lower your risk of tickborne disease transmission.
- Use a pair of tweezers or your fingers to grasp the tick by the head, close to the skin.
 - Pull the tick outward slowly, gently, and steadily
 - Clean the area with soap and water.
- Avoid folk remedies like Vaseline®, nail polish remover or burning matches - they are not a safe or effective way to remove ticks.

Watch this 1-minute video that shows you how to quickly remove a tick.



Tick Bite Prevention: Integrate tick control methods around you too

- Tumble dry clothing on high for ≥ 6 (dry) - 60 (wet) minutes
- Keep lawn and trails mowed short
- Remove leaf litter and brush
- Create a barrier between your yard and woods
- Talk with your vet about tick preventatives for your pets



Be Aware of Tickborne Disease Symptoms

Contact your doctor if you notice:

- Rash
- Fever
- Headache
- Fatigue
- Muscle or joint aches



Thank You!

Vectorborne Diseases Unit

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