



Medically Important Ticks of Nebraska

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**VECTOR-BORNE DISEASE
PROGRAM**

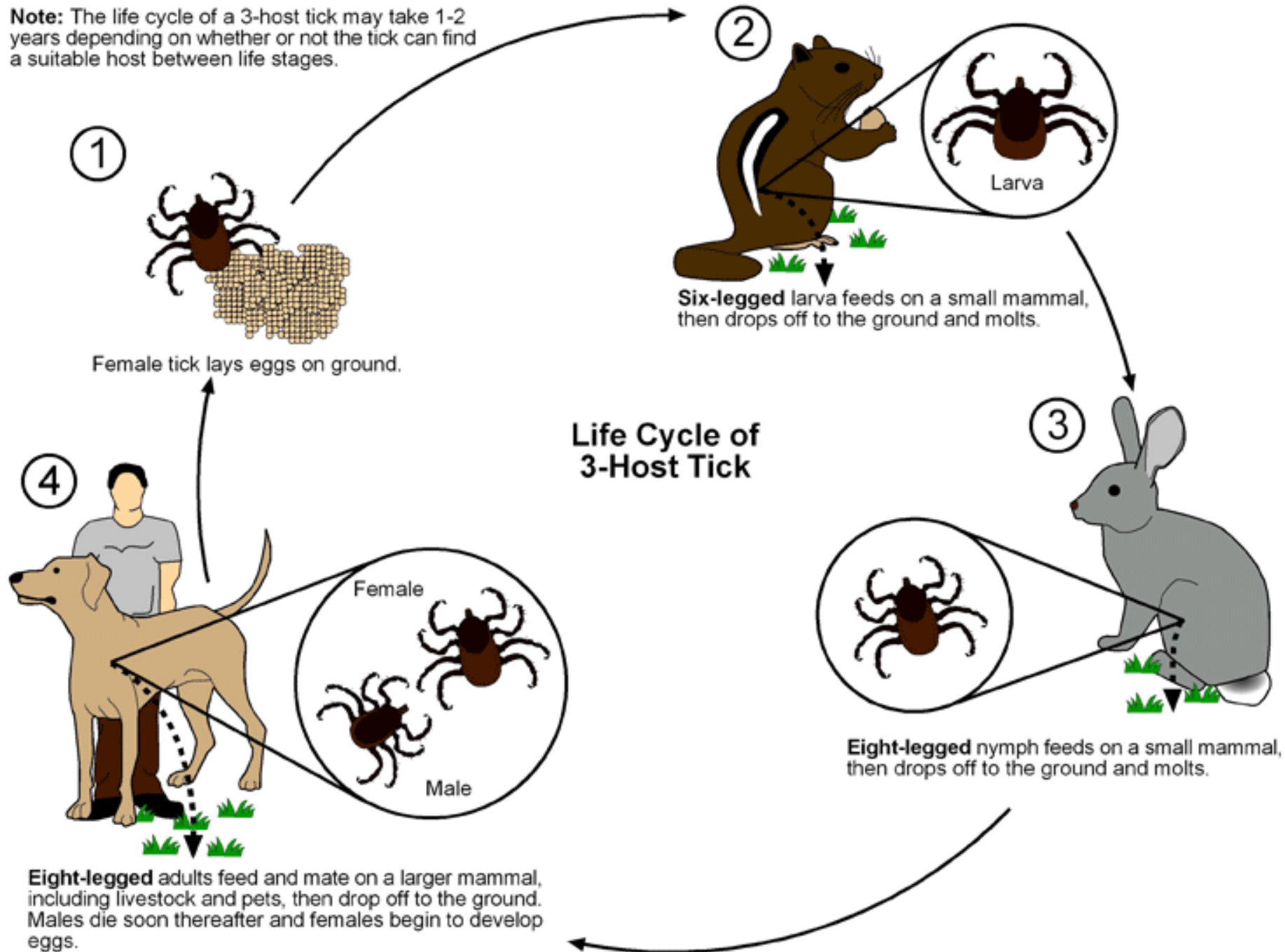
**NEBRASKA DEPARTMENT OF
HEALTH AND HUMAN SERVICES**

TICK BIOLOGY

- Arachnids (like spiders, mites, scorpions, etc.)
- Obligate hematophages
 - Need blood to survive and move from one life stage to the next
- Two main groups
 - Hard ticks (Ixodidae)*
 - Soft ticks (Argasidae)

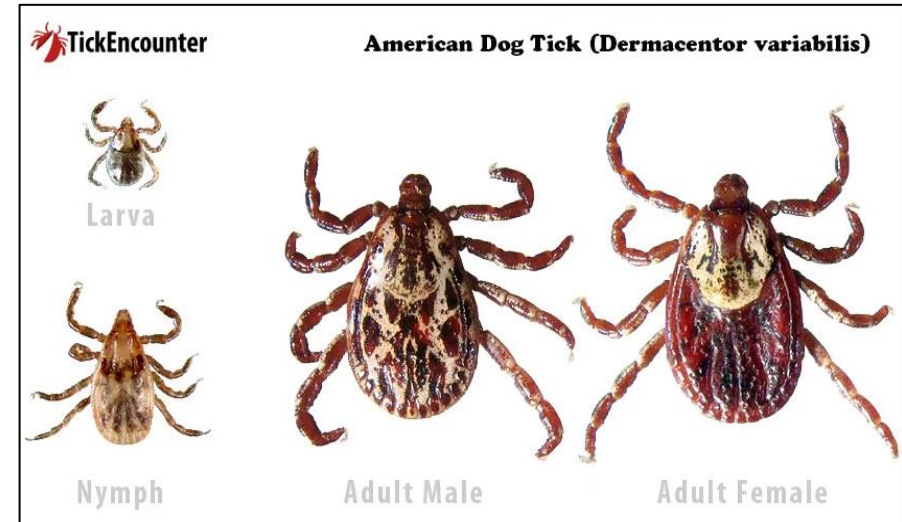


Note: The life cycle of a 3-host tick may take 1-2 years depending on whether or not the tick can find a suitable host between life stages.



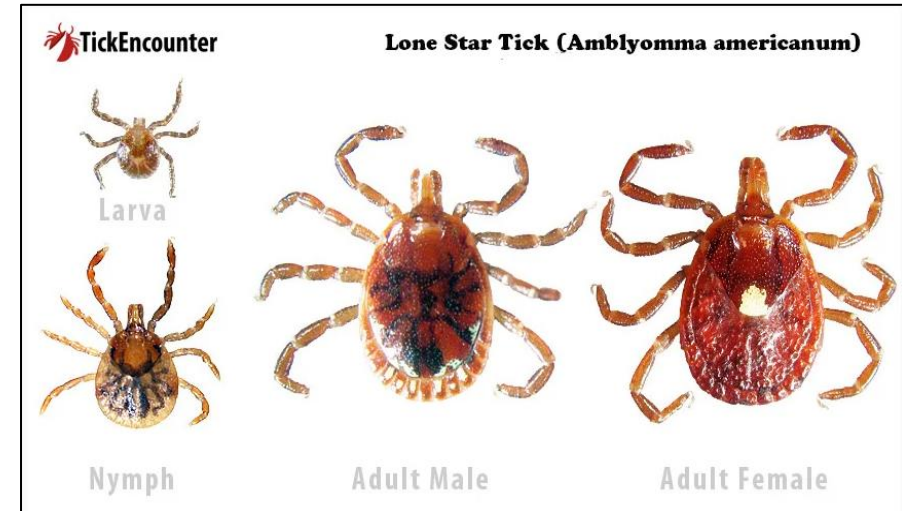
AMERICAN DOG TICK

- Most prevalent tick in most areas of Nebraska
- Vector for:
 - Tularemia
 - Rocky Mountain Spotted Fever
 - Other Spotted Fever Rickettsia?



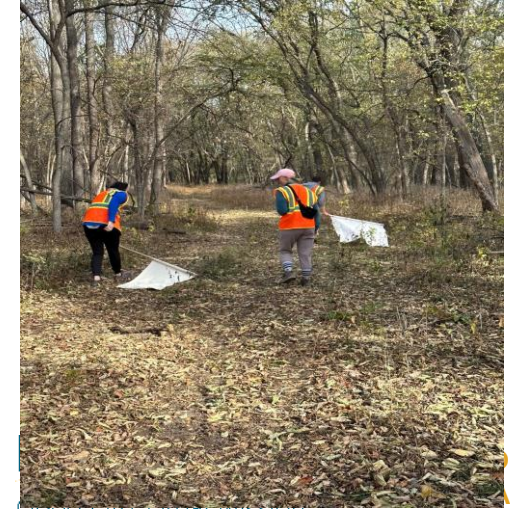
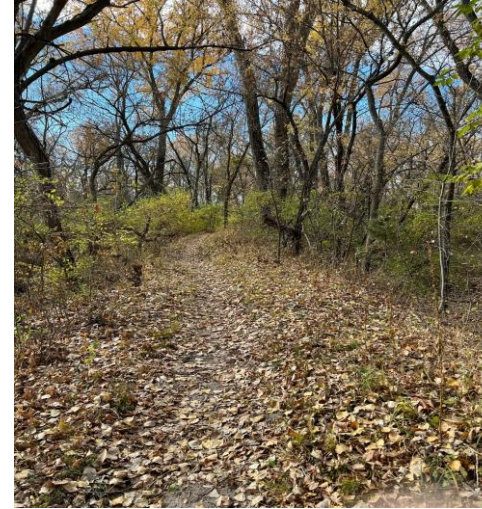
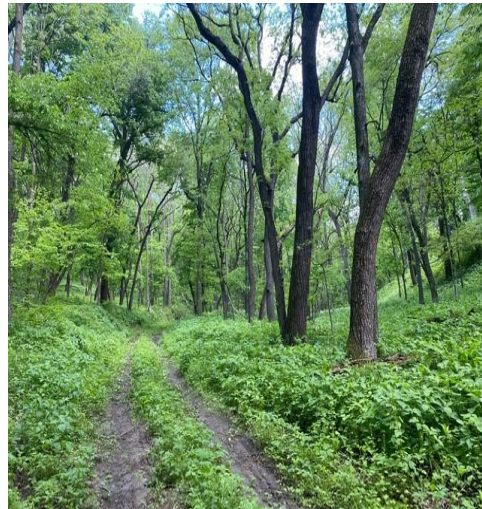
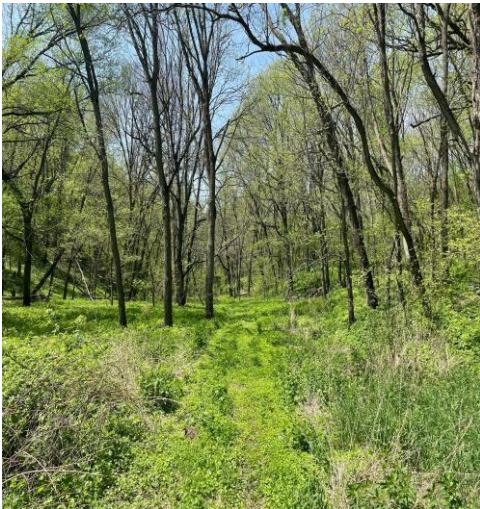
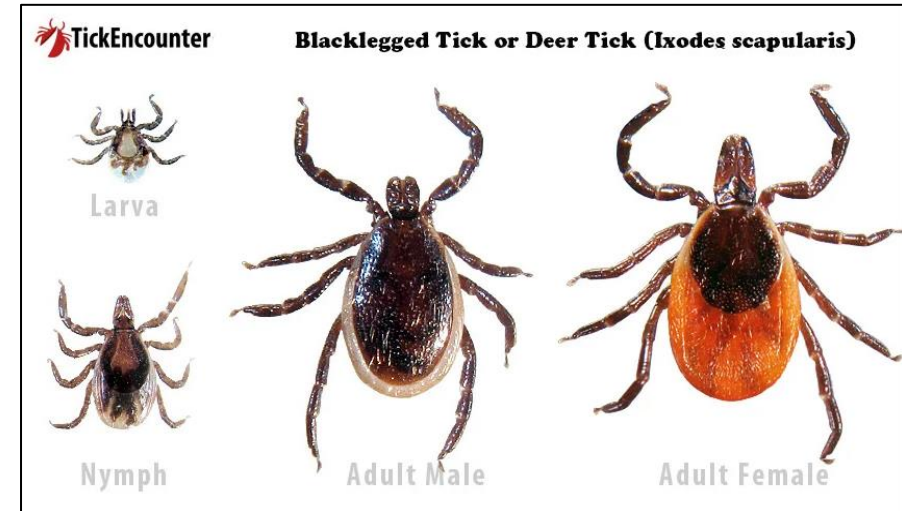
LONE STAR TICK

- 2nd most prevalent tick in Nebraska
 - May be most prevalent in tick in certain areas
 - Expanding further west and north
- Vector for:
 - Ehrlichiosis
 - Tularemia
 - Other Spotted Fever Rickettsia?
 - Heartland & Bourbon viruses
 - Alpha-gal*



BLACKLEGGED or DEER TICK

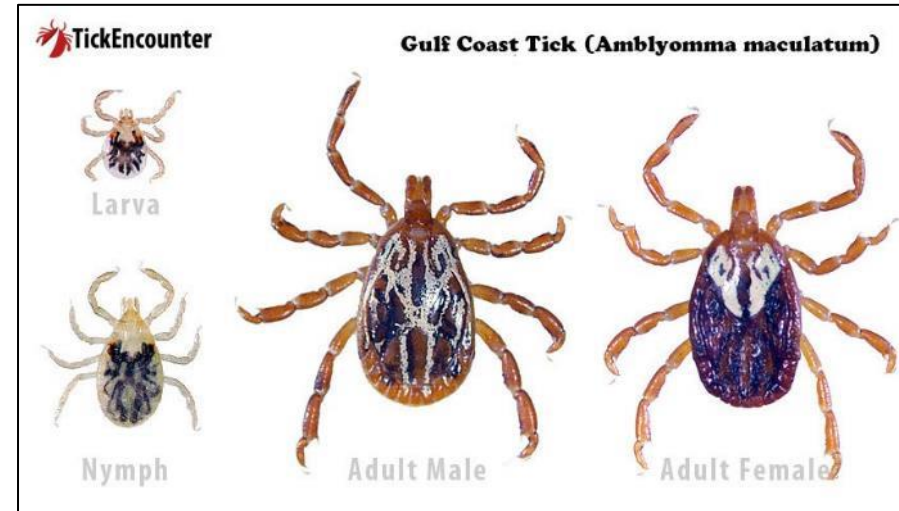
- Rare tick in Nebraska
 - Expanding into areas of the state
- Vector for:
 - Lyme disease
 - Anaplasmosis
 - Ehrlichiosis
 - Hard tick relapsing fever
 - Powassan virus



Good Life. Great Mission.

GULF COAST TICK

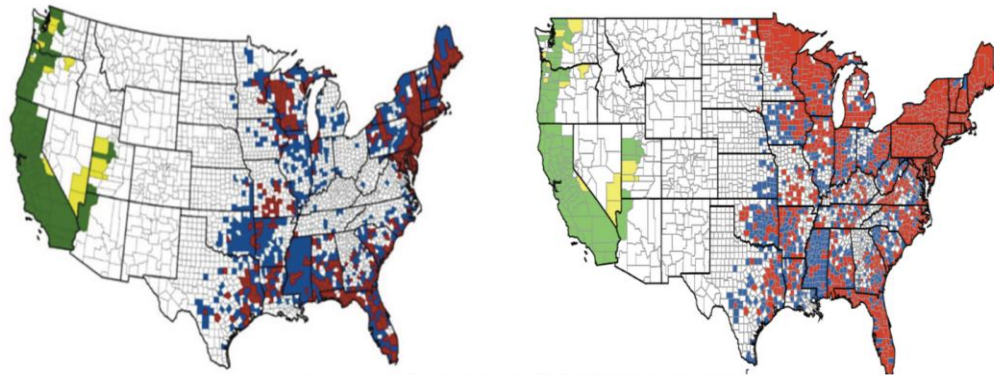
- Rare tick in Nebraska
 - Expanding into the state
- Vector for:
 - Tidewater Spotted Fever



TICK SURVEILLANCE

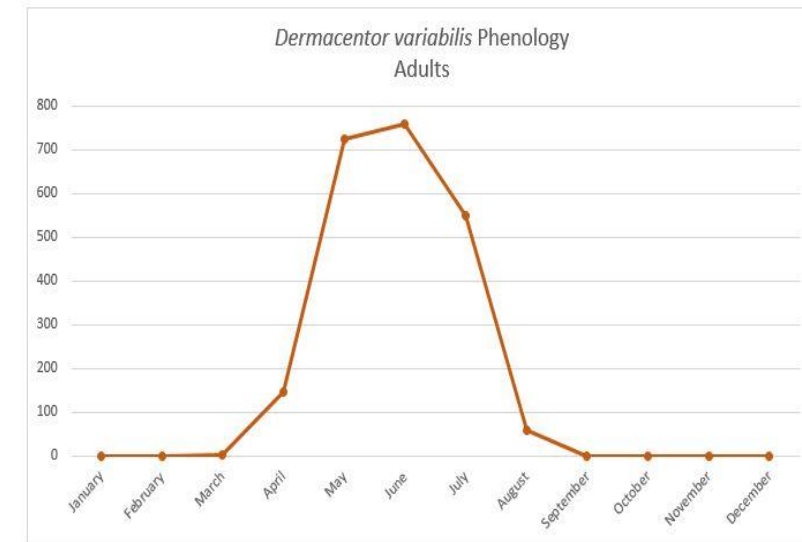
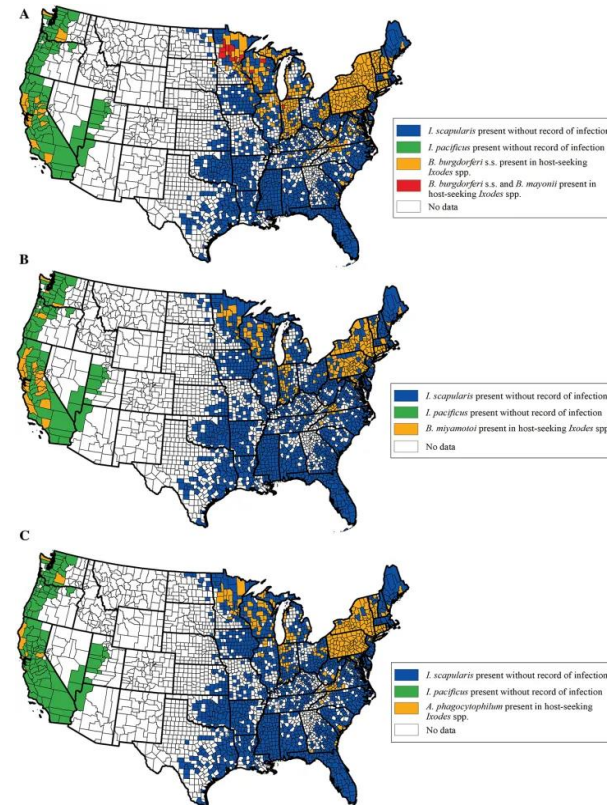
- Four primary goals
 - Classify county status for tick vector species
 - Identify the presence and prevalence of human pathogens in tick vectors
 - Estimate the density of host-seeking infected ticks
 - Document host-seeking phenology of tick vectors

CDC County-scale Blacklegged Tick Surveillance 1996 vs. 2020



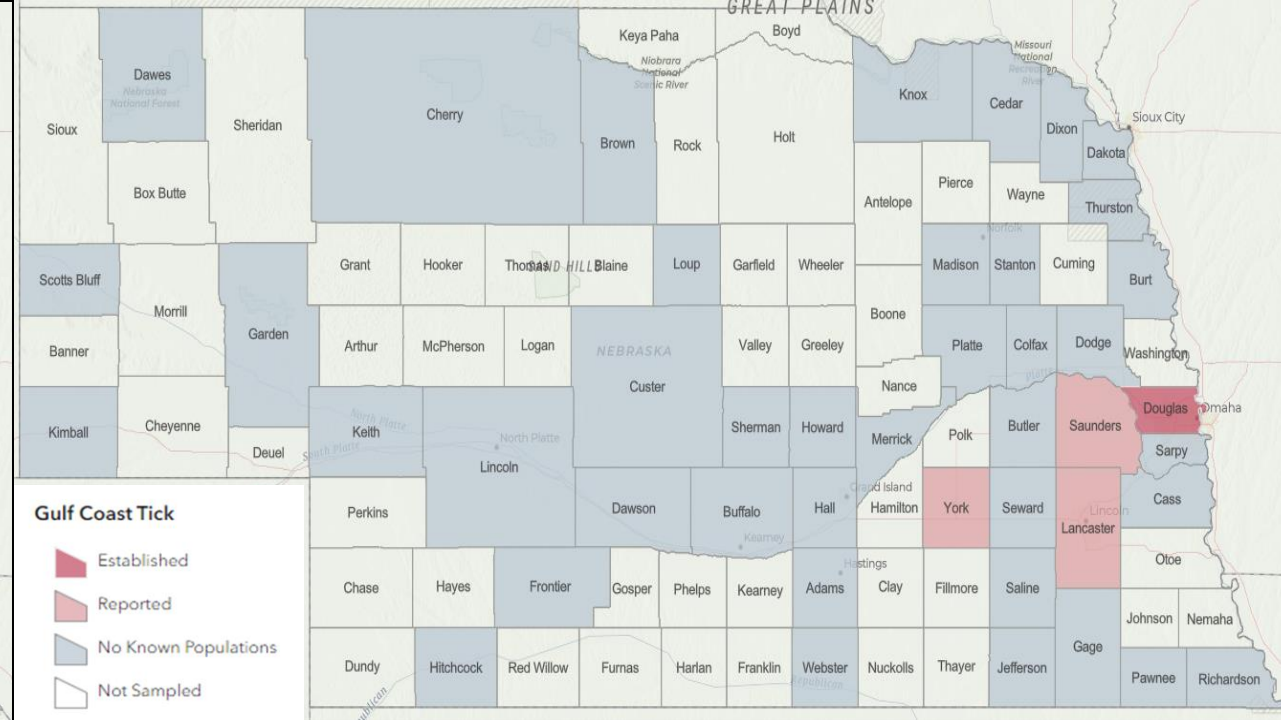
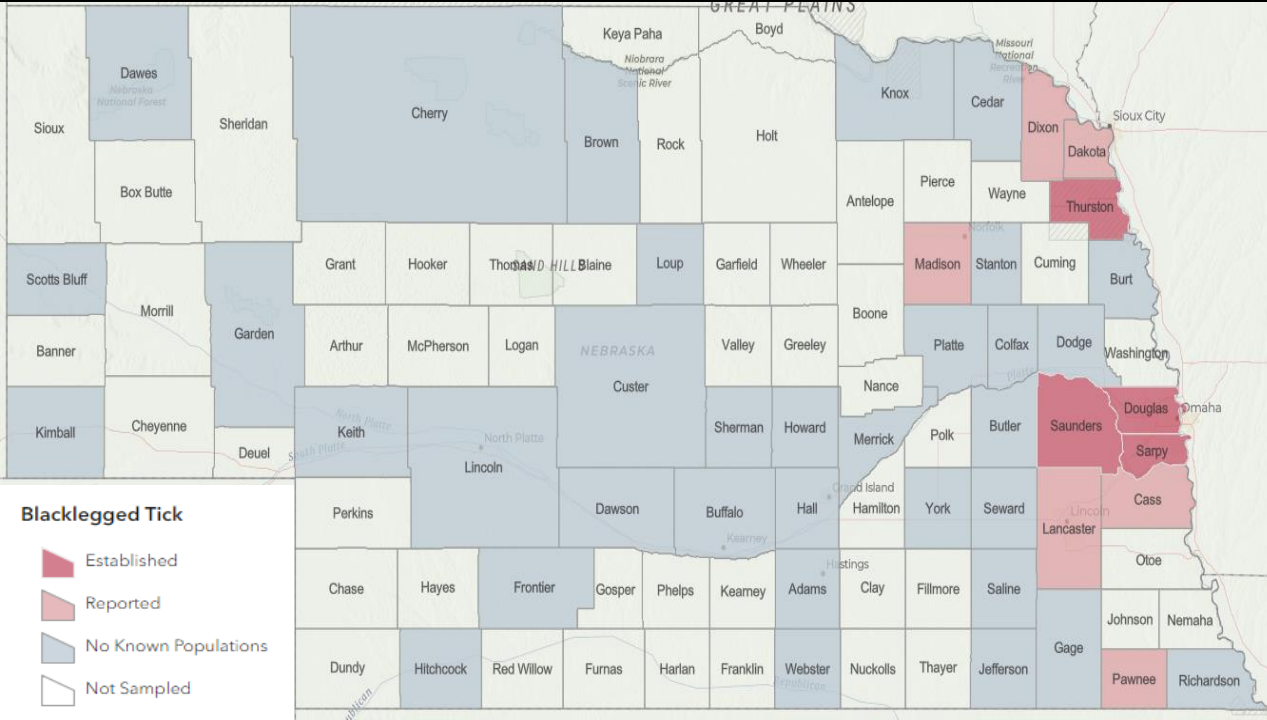
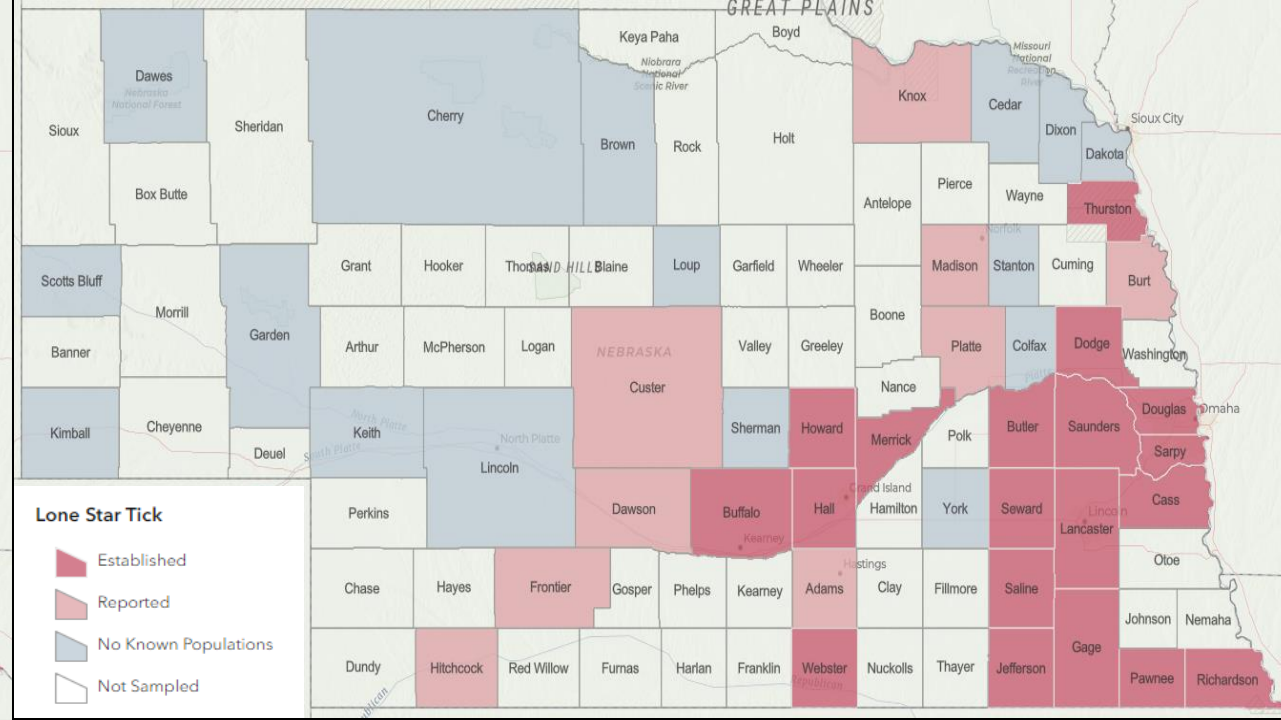
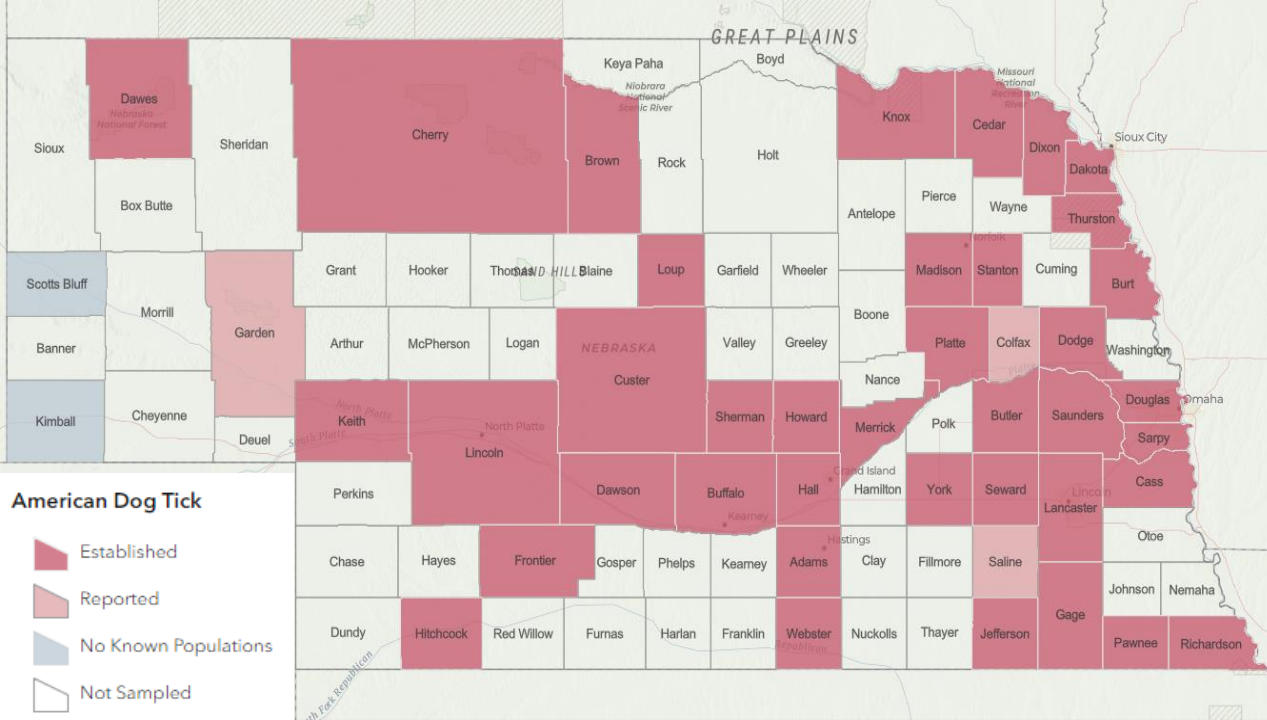
***Ixodes pacificus*:** ■ Established
■ Reported

***Ixodes scapularis*:** ■ Established
■ Reported



TICK SURVEILLANCE

Tick Species Counts by Life Stage, 2021-2023					
Life Stage					
Species	Adult	Nymph	Larvae	Total	Rel. Abundance (%)
American dog tick (<i>Dermacentor variabilis</i>)	5564	4	3	5571	47.5
Lone star tick (<i>Amblyomma americanum</i>)	1459	1948	2486	5893	50.2
Gulf Coast tick (<i>Amblyomma maculatum</i>)	5	2	0	7	0.1
Blacklegged or deer tick (<i>Ixodes scapularis</i>)	221	43	0	264	2.2
Total	7249	1997	2489	11735	100.0

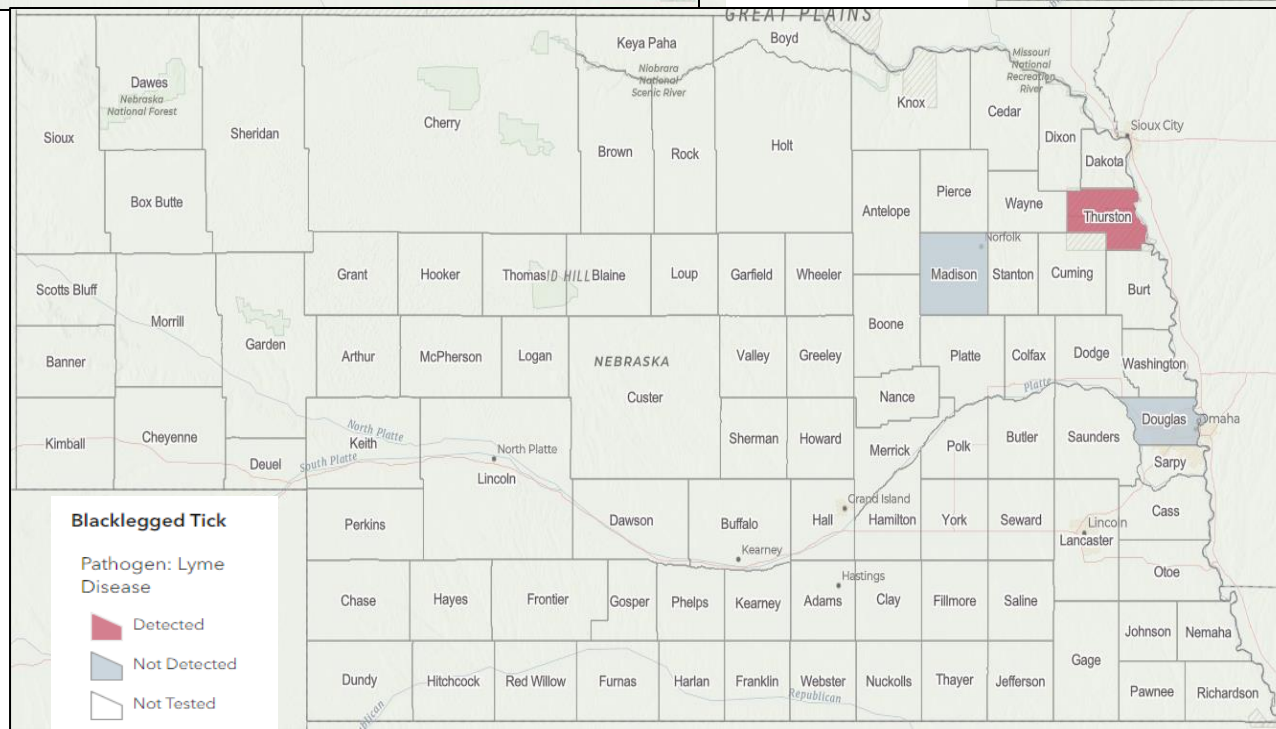
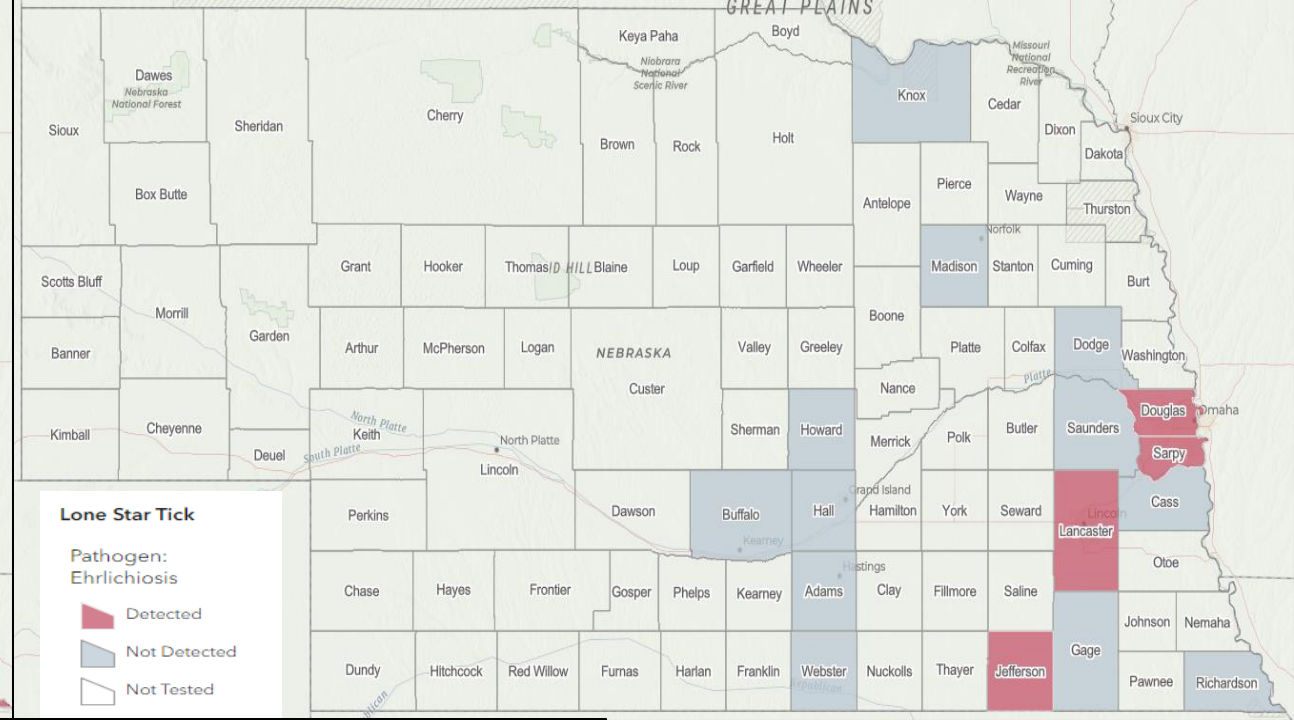
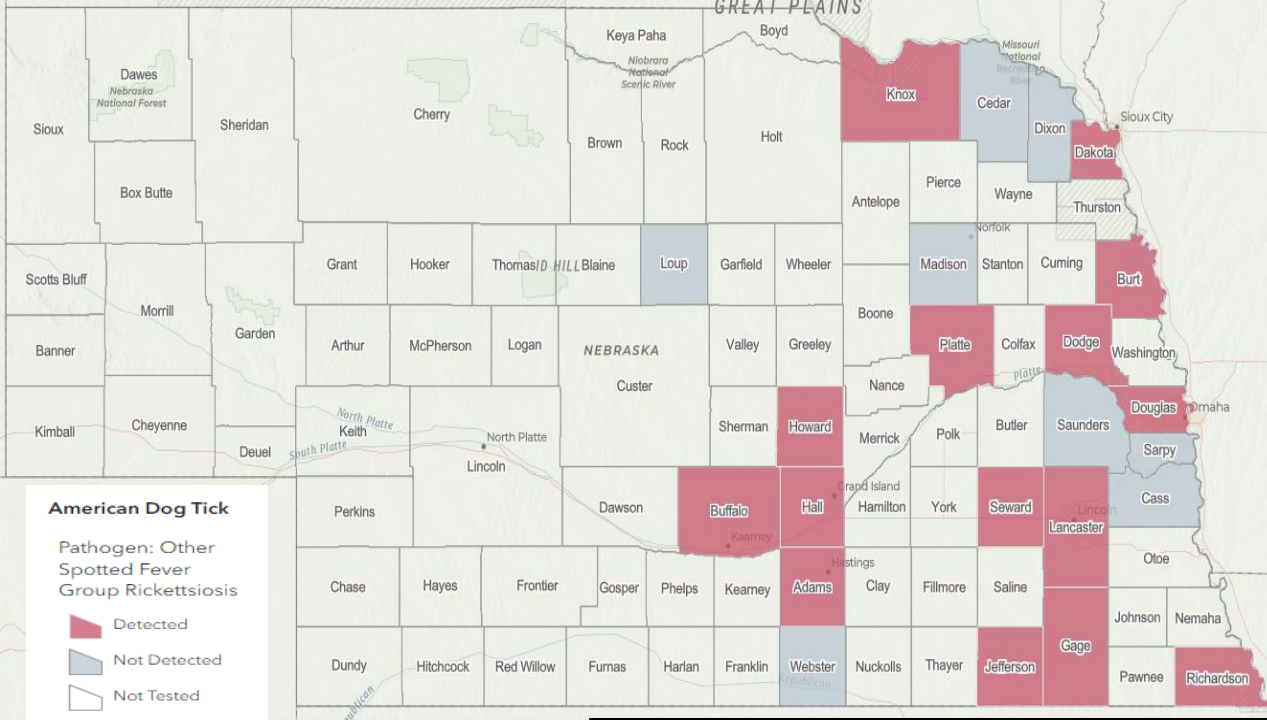


Non-Blacklegged Tick Pathogen Testing, 2021-2022

Species	E. chaffeensis % Pos	E. ewingii % Pos	F. tularensis % Pos	R. rickettsii % Pos	SFG Rickettsia % Pos	B. lonestari % Pos
American dog tick (<i>Dermacentor variabilis</i>) n = 1470	0.00	0.14	1.16	0.07	4.22	0.00
Lone star tick (<i>Amblyomma americanum</i>) n = 401	0.25	3.24	0.00	0.00	24.94	1.25

Blacklegged Tick Pathogen Testing, 2021-2022

Species	A. phagocytophilum % Pos	B. burgdorferi % Pos	B. mayonii % Pos	B. miyamotoi % Pos	Ba. microti % Pos	E. muris eauclarensis % Pos
Blacklegged or deer tick (<i>Ixodes scapularis</i>) n = 234	0.00	28.21	0.00	0.43	0.00	0.00



NEBRASKA TICK SURVEILLANCE MAP

- <https://dhhs.ne.gov/TickMaps>

Nebraska Vector-Borne Tick Surveillance			
			
American Dog Tick <i>Dermacentor variabilis</i>	Blacklegged Tick <i>Ixodes scapularis</i>	Gulf Coast Tick <i>Amblyomma maculatum</i>	Lone Star Tick <i>Amblyomma americanum</i>

NEBRASKA

Good Life. Great Mission.

DEPT. OF HEALTH AND HUMAN SERVICES

Nebraska Tick Surveillance

Vector-Borne Disease

Email Vector-Borne Disease

All data is provisional, last updated 1/4/2024

American Dog Tick

Blackedlegged Tick

Gulf Coast Tick

Lone Star Tick

About the Program

Distribution

American Dog Tick

(*Dermacentor variabilis*)

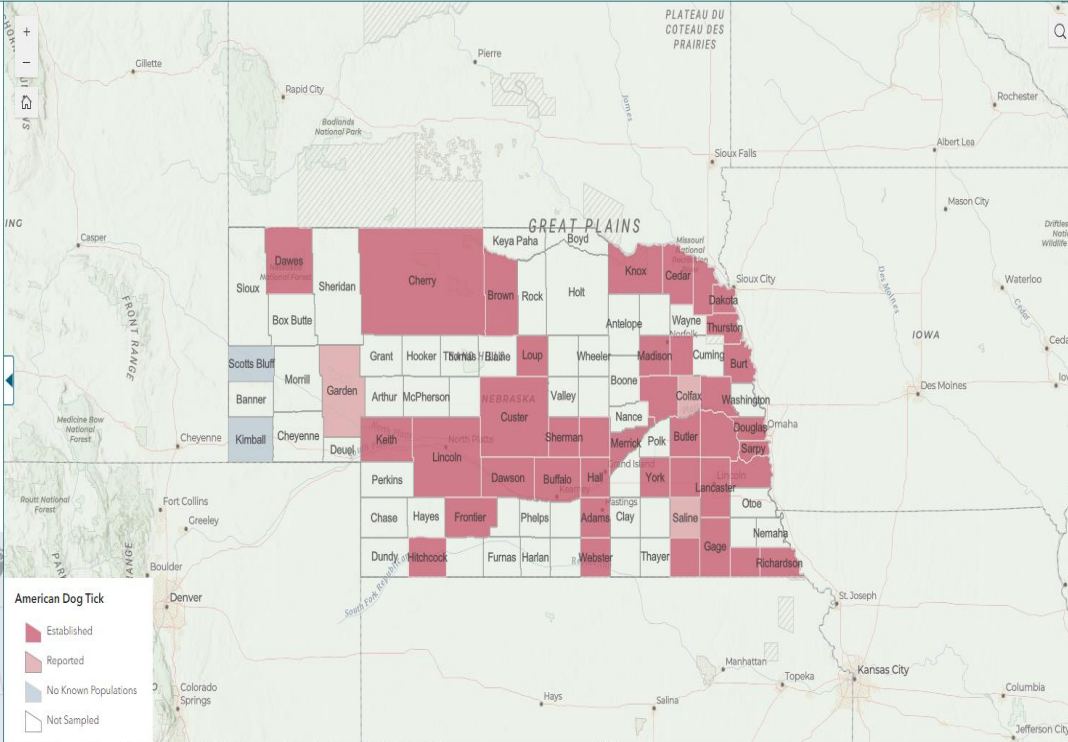


Distribution: The American dog tick is widely distributed east of the Rocky Mountains. Active tick surveillance began in 2021 and is ongoing. This map will be updated with additional data as it becomes available.

Pathogen Transmission: American dog ticks can transmit Rocky Mountain spotted fever, other spotted fever group rickettsia, tularemia, and potentially ehrlichiosis.

Activity Summary: The highest risk of being bitten occurs during spring and summer. Adult females are most likely to bite humans.

Distribution Status: CDC criteria for "established" ticks are at least six ticks or two life stages (larvae, nymphs, adults) collected in a single year. Criteria for "reported" ticks are one



American Dog Tick

- Established
- Reported
- No Known Populations
- Not Sampled



Questions?

DHHS Vector-Borne Disease Program

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