



2023 NEBRASKA TICKBORNE DISEASE REPORT

NEBRASKA DEPARTMENT OF HEALTH AND
HUMAN SERVICES (NDHHS)

VECTOR-BORNE DISEASE PROGRAM

MMWR WEEK 45

(Week Ending 11/11/2023)

****All Data is Provisional****

Summary

- Tickborne Disease Cases
 - 35 tickborne disease cases have been reported.
 - 17 of the cases have been hospitalized.
 - 1 death due to ehrlichiosis has been reported.
- Tick Bite Tracker
 - Visit rates for tick bites decreased during MMWR week 45 (ending 11/11/2023) and were above the historic average.
- Active Tick Surveillance
 - >4,300 total ticks have been collected in 2023.
 - >50 sites sampled to date.
 - 6 species identified.

Credit: NDHHS Vector-Borne Disease Program, Blacklegged tick (*Ixodes scapularis*) nymph



NEBRASKA HUMAN TICKBORNE DISEASE SURVEILLANCE

Credit: CDC, NCEZID-DVBD

Human Tickborne Disease Surveillance

Nebraska Tickborne Disease Cases, 2023 & 2022

Condition	2023	2022
Anaplasmosis	0	1
Babesiosis	0	0
Ehrlichiosis	14	19
Lyme Disease	5	9
Spotted Fever Group Rickettsioses	5	7
Tularemia	11	13
Total	35	49

- Statewide number of tickborne disease cases reported to the Nebraska Department of Health and Human Services (NDHHS)
 - All data is preliminary and subject to change as more information is gathered.
 - Reported cases only include confirmed and probable cases meeting CSTE/CDC case definition.
 - Spotted fever group rickettsioses includes Rocky Mountain Spotted Fever (RMSF).

Human Tickborne Disease Clinical Information

Nebraska Tickborne Disease Cases, 2023

	Anaplasmosis (n = 0)	Babesiosis (n = 0)	Ehrlichiosis (n = 14)	Lyme Disease (n = 5)	Spotted Fever Rickettsiosis (n = 5)	Tularemia (n = 11)
Age Range						
0-13	0	0	0	1	1	6
14-25	0	0	1	1	0	0
26-50	0	0	2	2	1	1
51-64	0	0	5	0	0	4
65+	0	0	6	1	3	0
Sex						
Male	0	0	7	2	2	4
Female	0	0	7	3	3	7
Diagnosis						
Hospitalized	0	0	8	0	3	5
Death	0	0	1	0	0	0

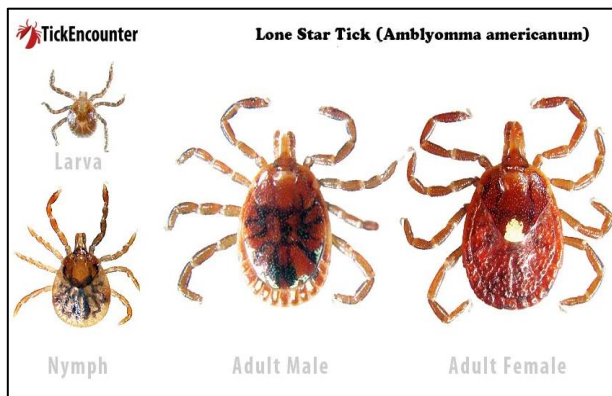
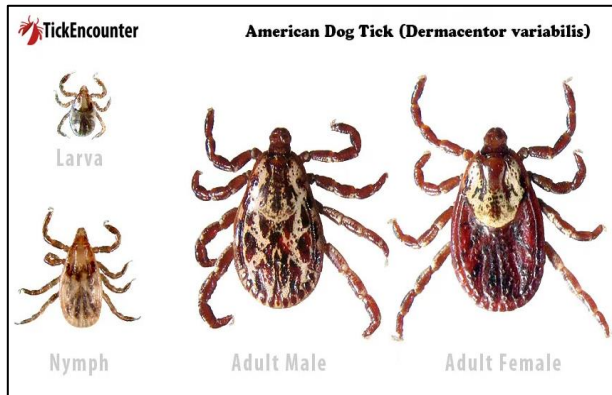


NEBRASKA TICK BITE DATA TRACKER

Credit: NDHHS Vector-Borne Disease Program, Top Row- male (left) and female (right) Gulf Coast ticks (*Amblyomma maculatum*), Bottom Row – male (left) and female (right) American dog ticks (*Dermacentor variabilis*)

Tick Bite Data Tracker

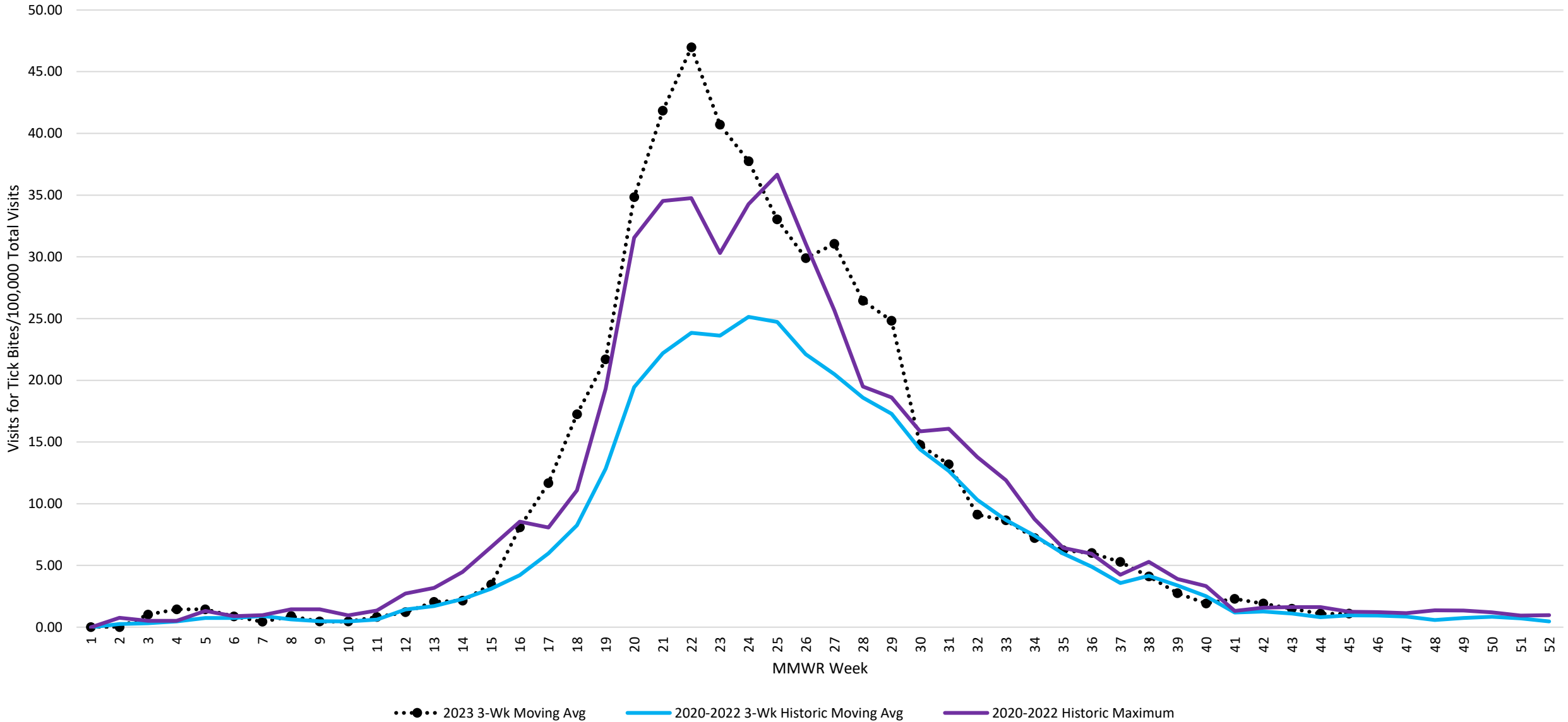
- NDHHS utilizes syndromic surveillance data (ESSENCE) as an indicator for tick activity and tick bite risk.
 - Data comes from emergency departments and outpatient clinic visits.
 - Visits related to tick bites are detected via a query containing various spellings of the word “tick” or combination of “tick” and “bite”.
 - Not all emergency departments and outpatient clinics report data to the NDHHS ESSENCE system and therefore results might not be generalizable to facilities not contributing data.
- The statewide 2023 tick bite visit rate during MMWR week 45 was very low when compared across all weeks but above the historic average for this time of year.
- The 2023 MMWR week 45 tick bite visit rate was slightly lower (1.10 tick bite visits/100,000) compared to 2022 (1.14 tick bite visits/100,000).



Images: Tick Encounter,
<https://web.uri.edu/tickencounter/>

Tick Bite Data Tracker

Emergency Department (ED) & Outpatient Clinic Visits for Tick Bites by Week, Nebraska 2023





NEBRASKA ACTIVE TICK SURVEILLANCE PROGRAM

Credit: NDHHS Vector-Borne Disease Program, active tick surveillance using tick flagging method

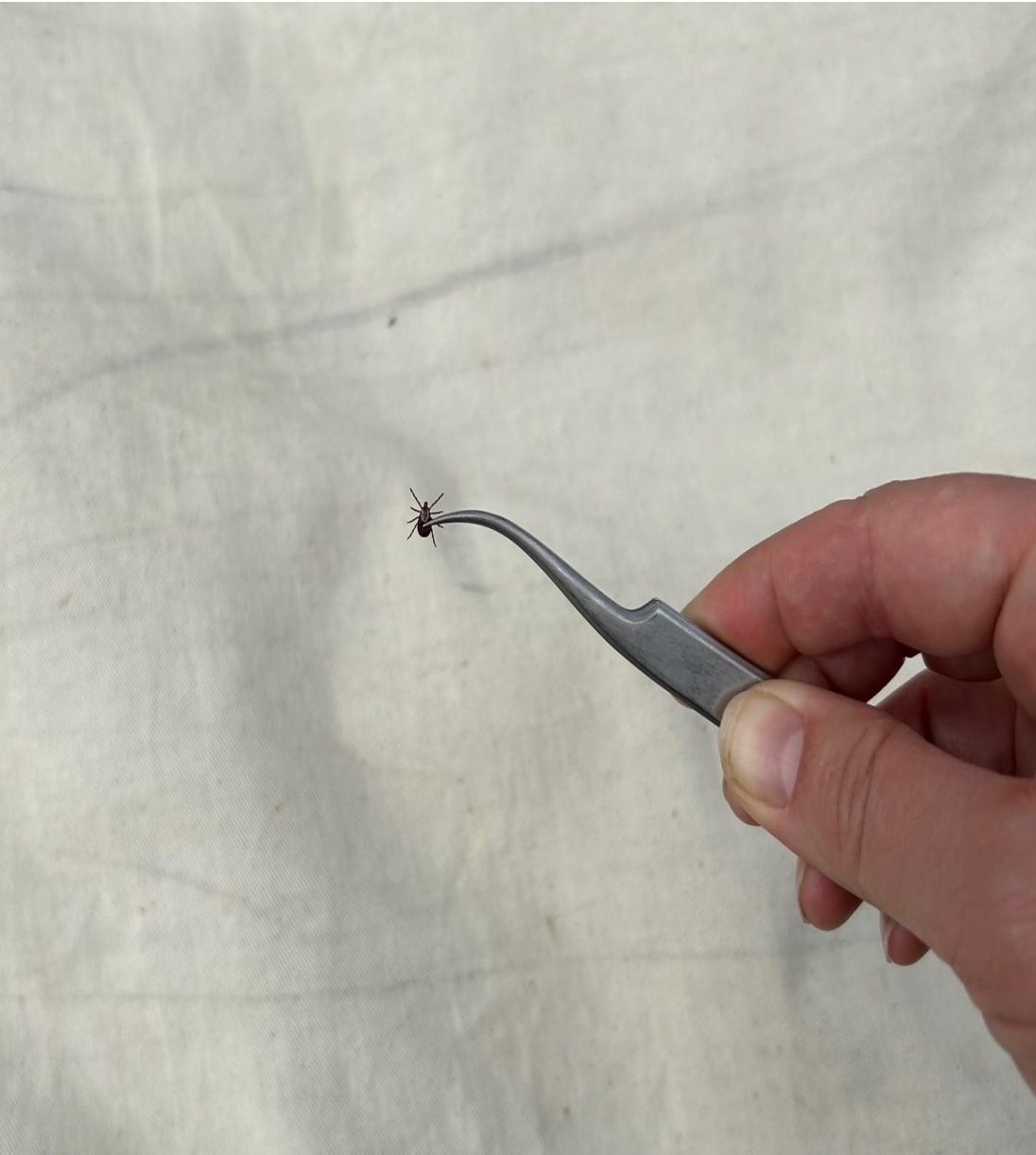
Active Tick Surveillance



- NDHHS has provided funding and partnered with 16 of the 19 local health departments to conduct active tick surveillance across the state.
- NDHHS is conducting active tick surveillance at sites in the other 3 local health jurisdictions.
- Goals of active surveillance:
 - Classify county status of different tick species in Nebraska
 - Determine presence and prevalence of tickborne pathogens at the county level
 - Data used to provide evidence-based information to stakeholders on where and when people are at risk for exposure to ticks and tickborne pathogens
 - Help explain epidemiological trends of tickborne diseases

Credit: NDHHS Vector-Borne Disease Program, collecting ticks off the tick flag

Active Tick Surveillance Results



- 53 sites across 40 counties surveyed to date
- 124,287.5 m² surveyed
- 4,337 total ticks collected
 - Average 3.5 ticks/100 m² sampled
- 6 species have been identified:
 - Lone star tick (*Amblyomma americanum*)*
 - Gulf Coast tick (*Amblyomma maculatum*)*
 - American dog tick (*Dermacentor variabilis*)*
 - Rabbit tick (*Haemaphysalis leporispalustris*)
 - “Other” rabbit tick (*Ixodes dentatus*)
 - Blacklegged or deer tick (*Ixodes scapularis*)*

*Medically important ticks that can transmit pathogens to people

Credit: NDHHS Vector-Borne Disease Program, female American dog tick collected off tick drag

2023 Collected Ticks

Collected Ticks by Sex, 2023

Species	Female Count	Male Count	Undetermined*
Lone star tick (<i>Amblyomma americanum</i>)	382	352	1201
Gulf Coast tick (<i>Amblyomma maculatum</i>)	1	2	2
American dog tick (<i>Dermacentor variabilis</i>)	1093	1232	1
Rabbit tick (<i>Haemaphysalis leporispalustris</i>)	0	0	1
"Other" rabbit tick (<i>Ixodes dentatus</i>)	0	0	1
Blacklegged or deer tick (<i>Ixodes scapularis</i>)	18	11	40
Total	1494	1597	1246

*Sex was not determined for nymphal or larval ticks

2023 Collected Ticks

Tick Species Counts by Life Stage, 2023

Life Stage				
Species	Adult	Nymph	Larvae	Total
Lone star tick (<i>Amblyomma americanum</i>)	734	1201	0	1935
Gulf Coast tick (<i>Amblyomma maculatum</i>)	3	2	0	5
American dog tick (<i>Dermacentor variabilis</i>)	2325	1	0	2326
Rabbit tick (<i>Haemaphysalis leporispalustris</i>)	0	1	0	1
"Other" rabbit tick (<i>Ixodes dentatus</i>)	0	1	0	1
Blacklegged or deer tick (<i>Ixodes scapularis</i>)	29	40	0	69
Total	3091	1246	0	4337

2023 EPI WEEK CALENDAR

Months shown in **RED** are potential "Vector" months

JANUARY

EPI Week #	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	1	2	3	4	5	6	7
2	8	9	10	11	12	13	14
3	15	16	17	18	19	20	21
4	22	23	24	25	26	27	28
5	29	30	31				

FEBRUARY

EPI Week #	Sun	Mon	Tue	Wed	Thu	Fri	Sat
5				1	2	3	4
6	5	6	7	8	9	10	11
7	12	13	14	15	16	17	18
8	19	20	21	22	23	24	25
9	26	27	28				

MARCH

EPI Week #	Sun	Mon	Tue	Wed	Thu	Fri	Sat
9				1	2	3	4
10	5	6	7	8	9	10	11
11	12	13	14	15	16	17	18
12	19	20	21	22	23	24	25
13	26	27	28	29	30	31	

APRIL

EPI Week #	Sun	Mon	Tue	Wed	Thu	Fri	Sat
13							1
14	2	3	4	5	6	7	8
15	9	10	11	12	13	14	15
16	16	17	18	19	20	21	22
17	23	24	25	26	27	28	29
18	30						

MAY

EPI Week #	Sun	Mon	Tue	Wed	Thu	Fri	Sat
18		1	2	3	4	5	6
19	7	8	9	10	11	12	13
20	14	15	16	17	18	19	20
21	21	22	23	24	25	26	27
22	28	29	30	31			

JUNE

EPI Week #	Sun	Mon	Tue	Wed	Thu	Fri	Sat
22					1	2	3
23	4	5	6	7	8	9	10
24	11	12	13	14	15	16	17
25	18	19	20	21	22	23	24
26	25	26	27	28	29	30	

JULY

EPI Week #	Sun	Mon	Tue	Wed	Thu	Fri	Sat
26							1
27	2	3	4	5	6	7	8
28	9	10	11	12	13	14	15
29	16	17	18	19	20	21	22
30	23	24	25	26	27	28	29
31	30	31					

AUGUST

EPI Week #	Sun	Mon	Tue	Wed	Thu	Fri	Sat
31			1	2	3	4	5
32	6	7	8	9	10	11	12
33	13	14	15	16	17	18	19
34	20	21	22	23	24	25	26
35	27	28	29	30	31		

SEPTEMBER

EPI Week #	Sun	Mon	Tue	Wed	Thu	Fri	Sat
35						1	2
36	3	4	5	6	7	8	9
37	10	11	12	13	14	15	16
38	17	18	19	20	21	22	23
39	24	25	26	27	28	29	30

OCTOBER

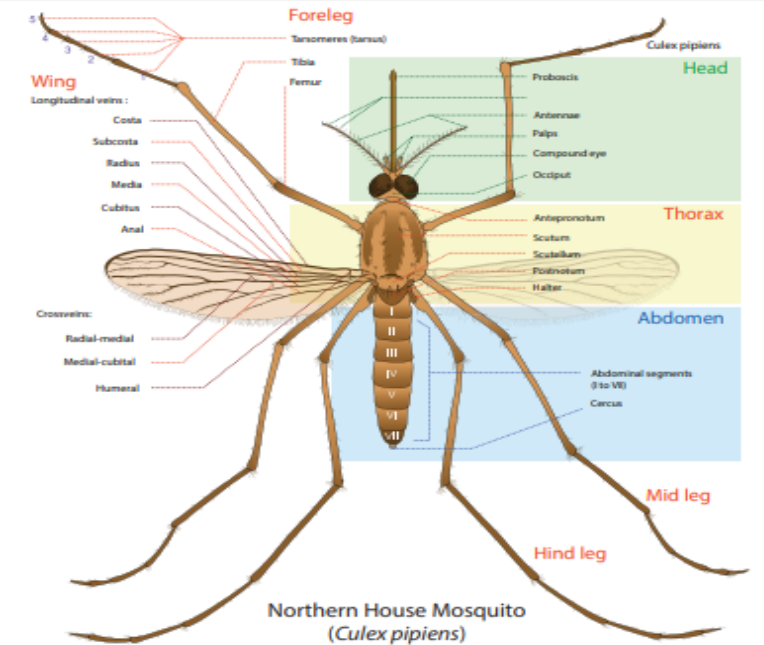
EPI Week #	Sun	Mon	Tue	Wed	Thu	Fri	Sat
40	1	2	3	4	5	6	7
41	8	9	10	11	12	13	14
42	15	16	17	18	19	20	21
43	22	23	24	25	26	27	28
44	29	30	31				

NOVEMBER

EPI Week #	Sun	Mon	Tue	Wed	Thu	Fri	Sat
44				1	2	3	4
45	5	6	7	8	9	10	11
46	12	13	14	15	16	17	18
47	19	20	21	22	23	24	25
48	26	27	28	29	30		

DECEMBER

EPI Week #	Sun	Mon	Tue	Wed	Thu	Fri	Sat
48						1	2
49	3	4	5	6	7	8	9
50	10	11	12	13	14	15	16
51	17	18	19	20	21	22	23
52	24	25	26	27	28	29	30
1	31						



Credit: Central Massachusetts Mosquito Control Project: <https://www.cmmcp.org/>



PREVENT TICK BITES!

- WEAR REPELLENT
- CHECK FOR TICKS DAILY
- SHOWER SOON AFTER BEING OUTDOORS
- CALL YOUR DOCTOR IF YOU GET A FEVER OR RASH

Resources

- Nebraska Department of Health and Human Services Tick-Borne Diseases Page: <https://dhhs.ne.gov/Pages/Tick-Borne-Diseases.aspx>
- University of Nebraska – Lincoln Tick Tag Go: <https://ticktaggo.unl.edu/>
- CDC Tick Webpage: <https://www.cdc.gov/ticks/index.html>
- CDC Tick Bite Data Tracker: <https://www.cdc.gov/ticks/tickedvisits/index.html>