



Vector Borne Disease 2021 Surveillance Report

Summit County Public Health

Report Weeks 1 and 2 (May 23 to June 5, 2021)
MMWR Weeks 21 and 22



Public Health
Prevent. Promote. Protect.

This report will be issued from June through October of each year (or later if West Nile Virus disease is still a concern). Surveillance will include human and veterinary cases and testing of mosquito pools in Summit County. It will also include updates from Ohio and around the nation. It will include vector-borne diseases besides West Nile Virus.

SUMMIT COUNTY SURVEILLANCE

Table 1: West Nile virus (WNV) tests ordered in Summit County hospitals

Week(s)	# of WNV tests ordered this period	# of positive WNV tests this period	Cumulative # of tests ordered this season	Cumulative # of positive tests this season	Percentage of positive tests
Weeks 1 & 2: 5/23 to 6/5	0	0	0	0	--
Weeks 3 & 4: 6/6 to 6/19					
Weeks 5 & 6: 6/20 to 7/3					
Weeks 7 & 8: 7/4 to 7/17					
Weeks 9 & 10: 7/18 to 7/31					
Weeks 11 & 12: 8/1 to 8/14					
Weeks 13 & 14: 8/15 to 8/28					
Weeks 15 & 16: 8/29 to 9/11					
Weeks 17 & 18: 9/12 to 9/25					
Weeks 19 & 20: 9/26 to 10/9					
Weeks 21 & 22: 10/10 to 10/23					

Note: Reporting may not be completed each week. Numbers will be updated when reports are received

West Nile virus testing (Table 1): During surveillance period Weeks 1 and 2, there were 0 tests for West Nile virus ordered by Summit County hospitals.

Lyme Disease testing (Table 2): There were 45 diagnostic test series performed for Lyme disease during Weeks 1 and 2, 3 tests were positive and two were indeterminate. The CDC currently recommends a two-step process when testing blood for evidence of antibodies against the Lyme disease bacteria (*Borrelia burgdorferi*). Both steps can be done using the same blood sample. The first step uses a testing procedure called "EIA" (enzyme immunoassay) or rarely, an "IFA" (indirect immunofluorescence assay). If this first step is negative, no further testing of the specimen is recommended. If the first step is positive or indeterminate (sometimes called "equivocal"), then the second step should be performed. The second step uses a test called an immunoblot test, commonly, a "Western blot" test. Results are considered positive only if the EIA/IFA and the immunoblot are both positive.

Week(s)	# of Lyme tests ordered this period	# of positive Lyme tests this period	Cumulative # of tests ordered this season	Cumulative # of positive tests this season	Percentage of positive tests
Weeks 1 & 2: 5/23 to 6/5	45	3	45	3	6.7%
Weeks 3 & 4: 6/6 to 6/19					
Weeks 5 & 6: 6/20 to 7/3					
Weeks 7 & 8: 7/4 to 7/17					
Weeks 9 & 10: 7/18 to 7/31					
Weeks 11 & 12: 8/1 to 8/14					
Weeks 13 & 14: 8/15 to 8/28					
Weeks 15 & 16: 8/29 to 9/11					
Weeks 17 & 18: 9/12 to 9/25					
Weeks 19 & 20: 9/26 to 10/9					
Weeks 21 & 22: 10/10 to 10/23					

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Reported Vector-borne diseases in 2021 (Table 3): As of June 5, there were 16 reported cases of Lyme disease; 3 were confirmed and 13 were suspected status. There were also one suspected case of Ehrlichiosis, one suspected case of babesiosis, and one confirmed case of malaria among Summit County residents.

	Confirmed	Suspected	Notes
Tick-borne diseases:			
Babesiosis	0	1	
Ehrlichiosis / anaplasmosis	0	1	
Lyme disease	3	13	
Powassan virus disease	0	0	
Rocky Mountain spotted fever	0	0	
Mosquito-borne diseases:			
Chikungunya	0	0	
Dengue	0	0	
Eastern equine encephalitis	0	0	
LaCrosse virus disease	0	0	
Malaria	1	0	Case was associated with international travel
St. Louis encephalitis virus disease	0	0	
Zika virus infection	0	0	
West Nile virus infection	0	0	

Source: Ohio Disease Reporting System (ODRS); only confirmed, probable, and suspected cases are included.

Species name	Diseases associated	Summit County	Ohio
Mosquito species			
<i>Aedes albopictus</i>	Chikungunya, dengue fever, yellow fever	0	9
<i>Aedes triseriatus</i>	La Crosse encephalitis	1	10
<i>Coquillettia perturbans</i>	Eastern equine encephalitis, West Nile virus	0	0
Tick species			
<i>Amblyomma americanum</i>	Ehrlichiosis, tularemia, red meat allergy	0	43
<i>Dermacentor variabilis</i>	Rocky Mountain spotted fever, tularemia	17	149
<i>Ixodes scapularis</i>	Lyme disease, babesiosis, anaplasmosis	1	60

Source: Ohio Department of Health (Identification via mailed specimens, emailed photos and iNaturalist observations)

Reporting Week(s)	Cases reported this period	Cumulative cases for the season
Aseptic meningitis cases reported prior to season (1/1 to 5/22/2021)	4	-
Weeks 1 & 2: 5/23 to 6/5	0	0
Weeks 3 & 4: 6/6 to 6/19		
Weeks 5 & 6: 6/20 to 7/3		
Weeks 7 & 8: 7/4 to 7/17		
Weeks 9 & 10: 7/18 to 7/31		
Weeks 11 & 12: 8/1 to 8/14		
Weeks 13 & 14: 8/15 to 8/28		
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Weeks 17 & 18: 9/12 to 9/25		
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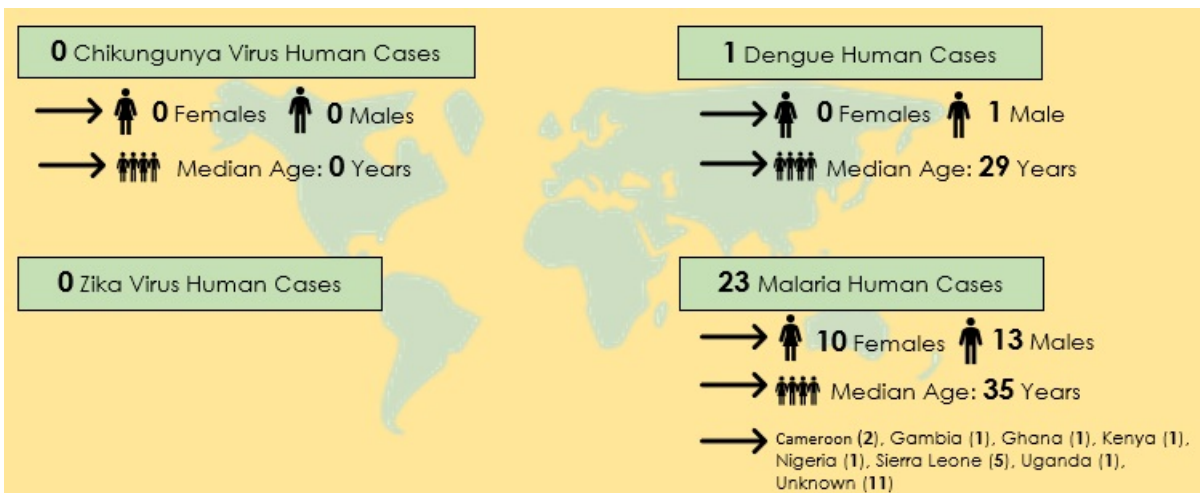
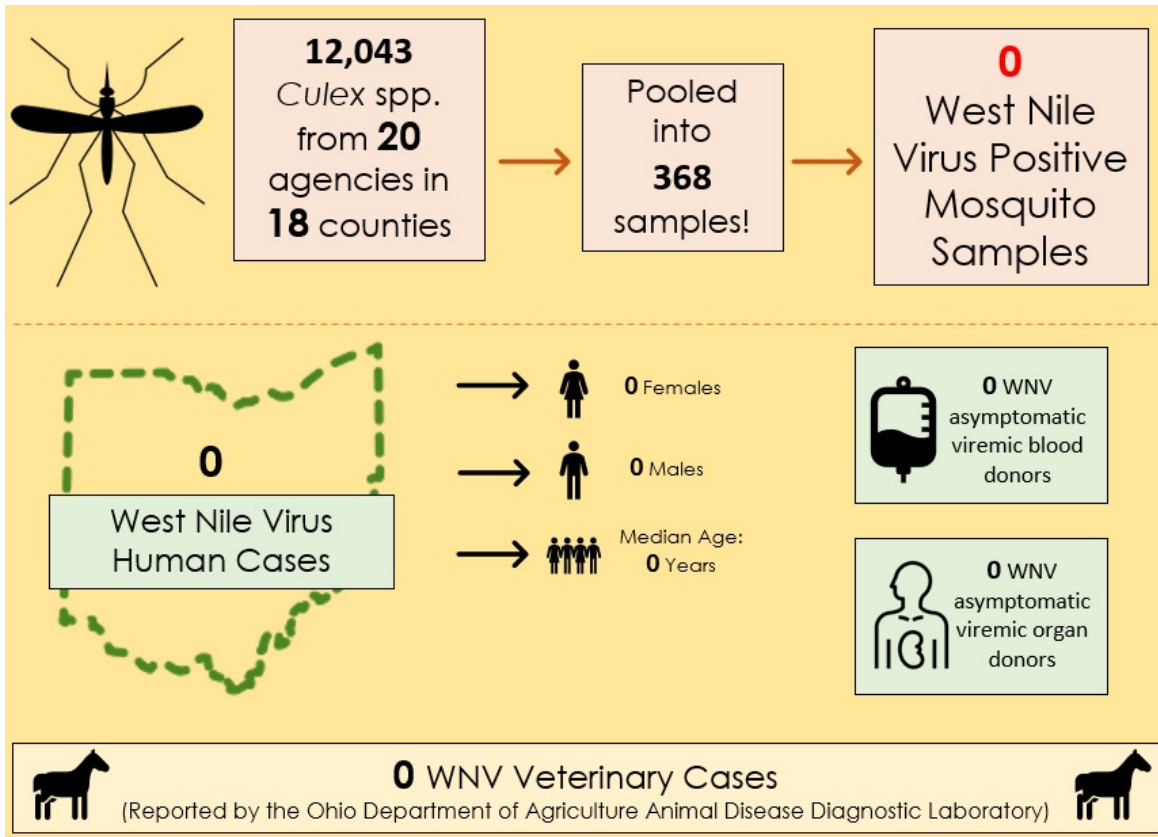
Source: Ohio Disease Reporting System (ODRS)

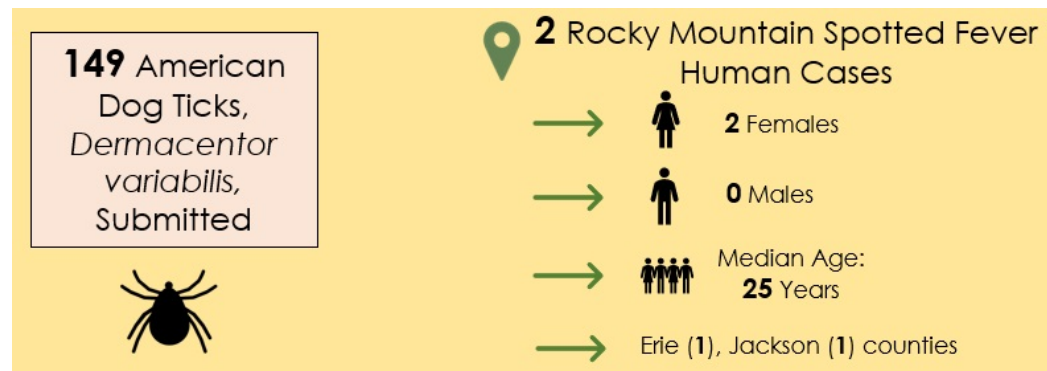
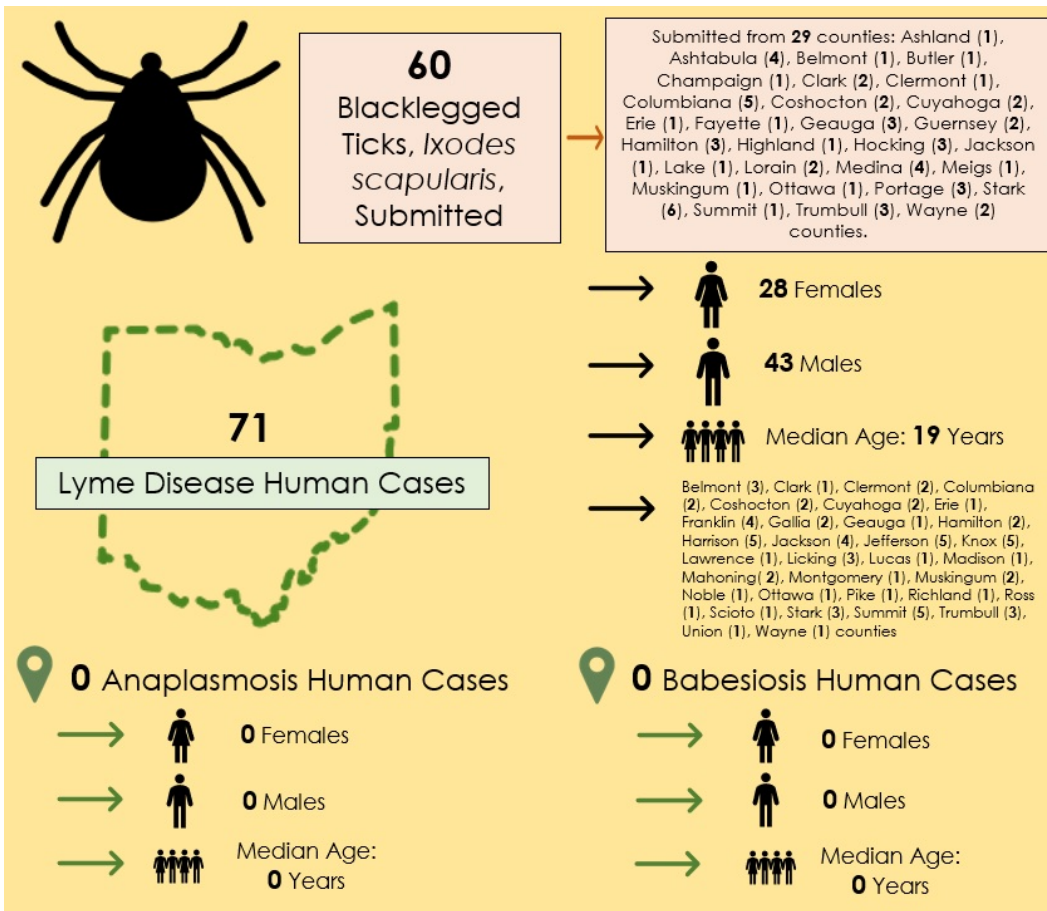
Reported aseptic/viral meningitis cases (Table 5): Prior to the reporting season, there were 4 reported cases of aseptic meningitis, and no cases were reported during Weeks 1 and 2. Aseptic/viral meningitis is the most common type of meningitis and occurs predominately in the summer and fall. While most aseptic/viral meningitis cases are due to gastrointestinal or respiratory viruses, similar symptoms may be present with arthropod-borne diseases.

Mosquito testing by the Ohio Department of Health: Based on the ODH mosquito testing summary released on June 15, 2021, over 2,901 mosquitoes were collected as 84 pooled samples throughout Summit County. All of the pooled samples are currently pending for West Nile virus testing to be completed.

Mosquitoes identified	2,901
Pooled samples tested	0
Positive WNV pooled samples	0

Note: All mosquitoes pools tested were *Culex spp.*





Special note for travelers:

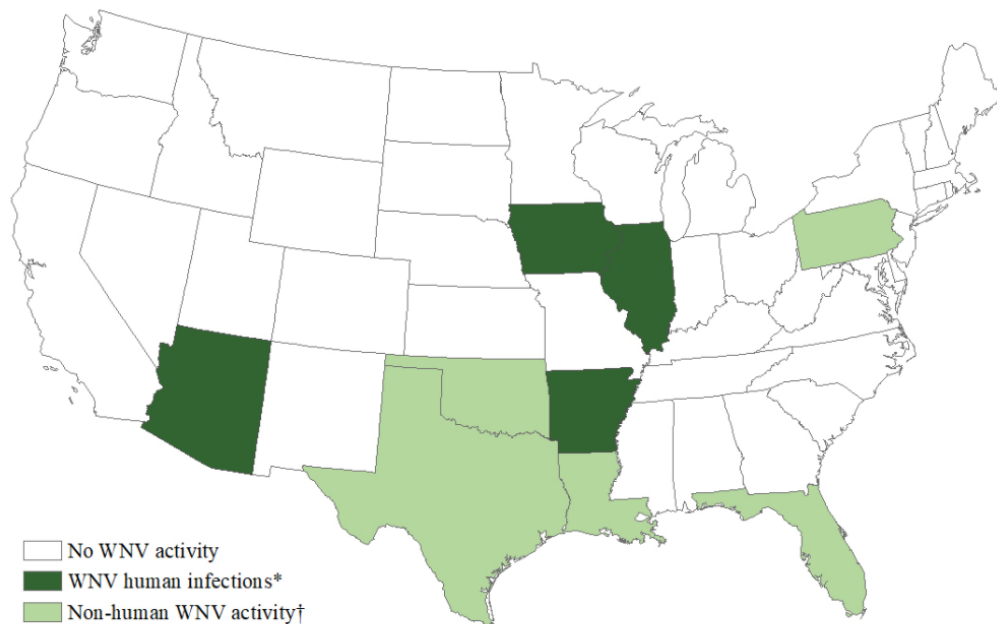
Ohioans traveling to areas where local transmission is occurring should be aware of the ongoing situation and make every effort to avoid mosquito bites. Additional information can be found from the [Centers for Disease Control and Prevention \(CDC\)'s Travelers' Health](#) and [Pan-American Health Organization](#) websites.

Table 7. Reported Vector Borne disease in the United States, 2021

Disease	Weeks 1 and 2 (5/23 to 6/5)	2021 (as of 6/5) Cumulative
Babesiosis	15	104
Chikungunya	0	2
Dengue (includes dengue-like illness)	0	16
Eastern equine encephalitis	0	0
Erlchiosis / anaplasmosis	134	745
Jamestown Canyon virus disease	0	0
LaCrosse virus disease	0	1
Lyme Disease	Not reported weekly by CDC	
Malaria	12	225
Powassan virus disease	0	0
Spotted fever rickettsiosis	Not reported weekly by CDC	
St. Louis encephalitis virus disease	0	0
West Nile virus infection	0	4
Zika virus infection, non congenital	0	0
Note: Data is provisional and subject to change		

Source: https://wonder.cdc.gov/nndss/nndss_weekly_tables_menu.asp

Figure 1. West Nile virus activity by state – United States, 2021 (as of June 15, 2021)



Ohio has not yet reported West Nile virus activity in humans or non-humans. Human cases of West Nile virus infection have been reported in Arizona, Arkansas, Illinois and Iowa.

No WNV activity
 WNV human infections*
 Non-human WNV activity†

*WNV human disease cases or presumptive viremic blood donors. Presumptive viremic blood donors have a positive screening test which has not necessarily been confirmed.

†WNV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals.

Source: <https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2020/activitybystate2020.html>

TRENDS IN VECTOR BORNE DISEASE IN SUMMIT COUNTY, 2012 - 2020

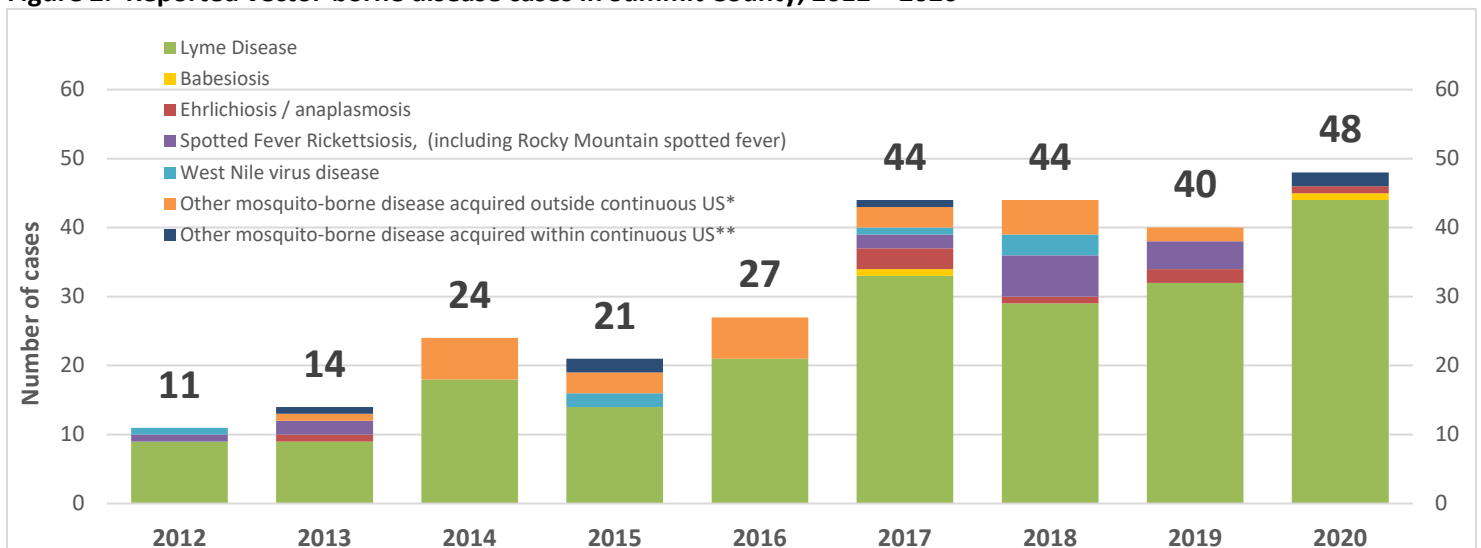
Table 8 provides data on the vector borne disease that were reported in Summit County from 2012 to 2020. As indicated in Table 8 and Figure 2, the number of vector borne disease cases increased from 40 to 48 cases from 2019 to 2020. The majority of these cases were transmitted by ticks. The vector for Lyme disease, the blacklegged tick (*Ixodes scapularis*), was first identified in Ohio in 1989, but populations did not begin to increase dramatically until 2009. The blacklegged tick is now established throughout eastern and southern Ohio, and has been collected in all of Ohio's 88 counties.

Other notable events in vector borne disease surveillance were the increase in Chikungunya cases in 2014 (reported as other arthropod-borne diseases) and the Zika virus disease epidemic of 2016. Increases in ehrlichiosis and spotted fever rickettsiosis were observed from 2017 to 2019. The incidence of other vector-borne diseases, including West Nile virus disease and other tick-borne illness have remained consistently low.

Table 8. Reported vector-borne disease cases in Summit County, 1/1/2012 - 12/31/2020

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Babesiosis	0	0	0	0	0	1	0	0	1
Ehrlichiosis / anaplasmosis	0	1	0	0	0	3	1	2	1
Lyme Disease	9	9	18	14	21	33	29	32	44
Spotted Fever Rickettsiosis, (including Rocky Mountain spotted fever)	1	2	0	0	0	2	6	4	0
West Nile virus disease	1	0	0	2	0	1	3	0	0
Other mosquito-borne disease acquired outside continuous US*	0	1	6	3	6	3	5	2	0
Other mosquito-borne disease acquired within continuous US**	0	1	0	2	0	1	0	0	2
	11	14	24	21	27	44	44	40	48

Figure 2. Reported vector-borne disease cases in Summit County, 2012 – 2020



Notes: * Includes imported cases of malaria, chikungunya, dengue, and Zika virus infection
 ** Includes LaCrosse virus disease and St. Louis encephalitis virus disease

Data Source: Ohio Disease Reporting System

VECTOR BORNE DISEASE NEWS from Farm and Dairy:

Troubling tick season expected

COLUMBUS, Ohio — Cicadas may be getting a lot of hype these days for their cameo appearance, but one of the state's year-round regulars can cause a whole lot more problems. Less exotic looking than cicadas and far smaller, ticks are easy to miss—that is, until they bite.

With steadily increasing reports of illnesses from ticks biting people and pets in Ohio, ticks are concerning especially in the late spring and summer. During the warmest months, these tiny creatures are most active and most likely to pass on diseases. A warmer winter triggered an earlier start this spring, so ticks will be active for more of this year, said Risa Pesapane, a tick researcher and assistant professor with the colleges of Food, Agricultural, and Environmental Sciences (CFAES) and Veterinary Medicine (CVM) at The Ohio State University.

“Likely every year will be a bit worse, at least for the next few foreseeable years as ticks continue to expand in Ohio and become established in new counties,” Pesapane said. In some parts of the state, up to 60% of the blacklegged ticks are believed to be carrying Lyme disease, Pesapane said. Although found in most counties in Ohio, blacklegged ticks, also called deer ticks, are most abundant on the eastern side of the state.

One of the newest ticks in Ohio is the Gulf Coast tick. The Gulf Coast may be a ways away from Ohio, but these ticks can travel on birds and have done so, heading north and into the Midwest. Last summer, the first established populations of Gulf Coast ticks were found in Hamilton and Butler counties. Anyone bitten by this tick could experience spotted fever, which typically causes a fever, rash, and headache. A dog bitten by a Gulf Coast tick may not be affected. However, if a dog eats the tick, the dog can experience a fever along with weight loss, decreased appetite, and muscle pain, all symptoms of [canine hepatozoonosis](#).

Typically, Gulf Coast ticks prefer grassy fields that may be periodically mowed or are transitioning into forest. “We don’t yet know the extent of their distribution within Ohio. That’s an area of active research,” Pesapane said.

The Gulf Coast tick is the latest tick species to make a home in Ohio over the past two decades. The others are the blacklegged or deer tick, the lone star tick, and the Asian longhorned tick. Among all ticks in Ohio, the blacklegged tick poses the biggest threat, Pesapane said.

Once bitten by a tick carrying Lyme disease, a person might experience a fever, headache, fatigue, and often, a characteristic skin rash that looks like a bullseye. But about one third of people who get Lyme disease do not have the bullseye rash, Pesapane said. Left untreated, the infection can spread to joints, the heart, and the nervous system.

Blacklegged ticks frequently hang out under piles of leaves, at the edges of wooded and brushy areas. “There’s this ongoing misconception that people are exposed to ticks away from their homes only in rural or rugged areas. Actually, a lot of people are exposed to ticks in their own neighborhoods or local parks,” Pesapane said.

Dogs too are vulnerable. With dogs being furry and ticks being so small, the ticks can go unnoticed. Last year, 12,260 dogs in Ohio tested positive for Lyme disease, which is significantly higher than the two previous years, Pesapane said. One of her tick studies is on dogs brought to shelters in southern Ohio. Over a third of the shelter dogs she and her colleagues have screened in the past two years had been exposed to a tickborne disease, with the most common being Lyme disease. “The increasing cases of dogs with Lyme disease mirrors the trend in human cases very closely.”

For more information on ticks, visit go.osu.edu/tickfacts and go.osu.edu/beticksmart.

Source: <https://www.farmanddairy.com/news/troubling-tick-season-expected/668841.html>

About this report: Reporting agencies include Summit County hospital laboratories and the Ohio Department of Health. Vector-borne disease case data for Summit County are obtained from the Ohio Disease Reporting System.

Many thanks to all agencies who report vector-borne disease data weekly.

Reporting from participants may not be complete each week. Numbers may change as updated reports are received. For questions, please contact Joan Hall (jhall@sched.org) or the Summit County Public Health Communicable Disease Unit (330-375-2662). This report was issued on **June 15, 2021**.



Closeup of an adult female deer tick.