



# Vector Borne Disease 2019 Surveillance Report

Summit County Public Health



Report Weeks 21 and 22 (October 13 to October 26, 2019)  
MMWR Weeks 42 and 43

**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 for all reportable diseases that are transmitted insect vectors.

## SUMMIT COUNTY SURVEILLANCE

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: 5/26 to 6/8	2	1	2	1	50.0%
Weeks 3 & 4: 6/9 to 6/22	5	0	7	1	14.3%
Weeks 5 & 6: 6/23 to 7/6	4	0	11	1	9.1%
Weeks 7 & 8: 7/7 to 7/20	6	1	17	2	11.8%
Weeks 9 & 10: 7/21 to 8/3	9	1	26	3	11.5%
Weeks 11 & 12: 8/4 to 8/17	10	0	36	3	8.3%
Weeks 13 & 14: 8/18 to 8/30	14	1	50	4	8.0%
Weeks 15 & 16: 9/1 to 9/14	12	1	62	5	8.1%
Weeks 17 & 18: 9/15 to 9/28	14	0	76	5	6.6%
Weeks 19 & 20: 9/29 to 10/12	11	0	87	5	5.8%
Weeks 21 & 22: 10/13 to 10/26	5	0	92	5	5.4%

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 21 and 22, there were 5 tests for West Nile virus (stand alone or part of an arbovirus panel) ordered by Summit County hospitals, none were positive. So far this season, there have been 5 positive results, all of which were likely to be indication of immunity due to a past exposure and were not active infections (Table 1).

**Lyme disease testing (Table 2):** There were 46 diagnostic test series performed for Lyme disease during Weeks 21 and 22, 5 of which were positive. 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: 5/26 to 6/8	55	2	55	2	3.6%
Weeks 3 & 4: 6/9 to 6/22	79	10	134	12	9.0%
Weeks 5 & 6: 6/23 to 7/6	59	6	193	18	9.3%
Weeks 7 & 8: 7/7 to 7/20	84	5	277	23	8.3%
Weeks 9 & 10: 7/21 to 8/3	82	12	359	35	9.8%
Weeks 11 & 12: 8/4 to 8/17	69	7	428	42	9.8%
Weeks 13 & 14: 8/18 to 8/30	65	8	493	50	10.1%
Weeks 15 & 16: 9/1 to 9/14	64	5	557	55	9.9%
Weeks 17 & 18: 9/15 to 9/28	60	9	617	64	10.4%
Weeks 19 & 20: 9/29 to 10/12	59	5	676	69	10.2%
Weeks 21 & 22: 10/13 to 10/26	46	5	722	74	10.5%

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

**Reported Vector-borne diseases in 2019 (Table 3):** As of October 26, there were 25 reported cases of Lyme disease; 8 were confirmed by laboratory testing and 17 were suspected cases. Two confirmed cases of malaria, four cases of Rocky Mountain spotted fever, and two cases of ehrlichiosis were also reported.

	Confirmed or Probable	Suspected	Notes
<b>Tick-borne diseases:</b>			
Babesiosis	0	0	
Ehrlichiosis / anaplasmosis	0	2	
Lyme disease	8	17	
Powassan virus disease	0	0	
Rocky Mountain spotted fever	1	3	
<b>Mosquito-borne diseases:</b>			
Chikungunya	0	0	
Dengue	0	0	
Eastern equine encephalitis	0	0	
LaCrosse virus disease	0	0	
Malaria	2	0	Cases were international travel-related
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	# identified
<b>Mosquito species</b>		
<i>Aedes albopictus</i>	Chikungunya, dengue fever, yellow fever	3
<i>Aedes triseriatus</i>	La Crosse encephalitis	532
<b>Tick species</b>		
<i>Ixodes scapularis</i>	Lyme disease, babesiosis, anaplasmosis	81

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

**Table 5. Reported Aseptic/viral Meningitis Cases in Summit County (confirmed & probable), as of October 26, 2019**

Week(s)	Cases reported this period	Cumulative cases for the season
Aseptic meningitis cases reported prior to season (1/1 to 5/25/2019)	3	-
Weeks 1 & 2: 5/26 to 6/8	1	1
Weeks 3 & 4: 6/9 to 6/22	2	3
Weeks 5 & 6: 6/23 to 7/6	2	5
Weeks 7 & 8: 7/7 to 7/20	3	8
Weeks 9 & 10: 7/21 to 8/3	2	10
Weeks 11 & 12: 8/4 to 8/17	3	13
Weeks 13 & 14: 8/18 to 8/30	0	13
Weeks 15 & 16: 9/1 to 9/14	0	13
Weeks 17 & 18: 9/15 to 9/28	2	15
Weeks 19 & 20: 9/29 to 10/12	0	15
Weeks 21 & 22: 10/13 to 10/26	2	17

Source: Ohio Disease Reporting System (ODRS)

**Reported aseptic/viral meningitis cases (Table 5):** Prior to the reporting season, there were three reported cases of aseptic meningitis, and no cases were reported during Weeks 21 and 22, increasing the season total to 17. 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.

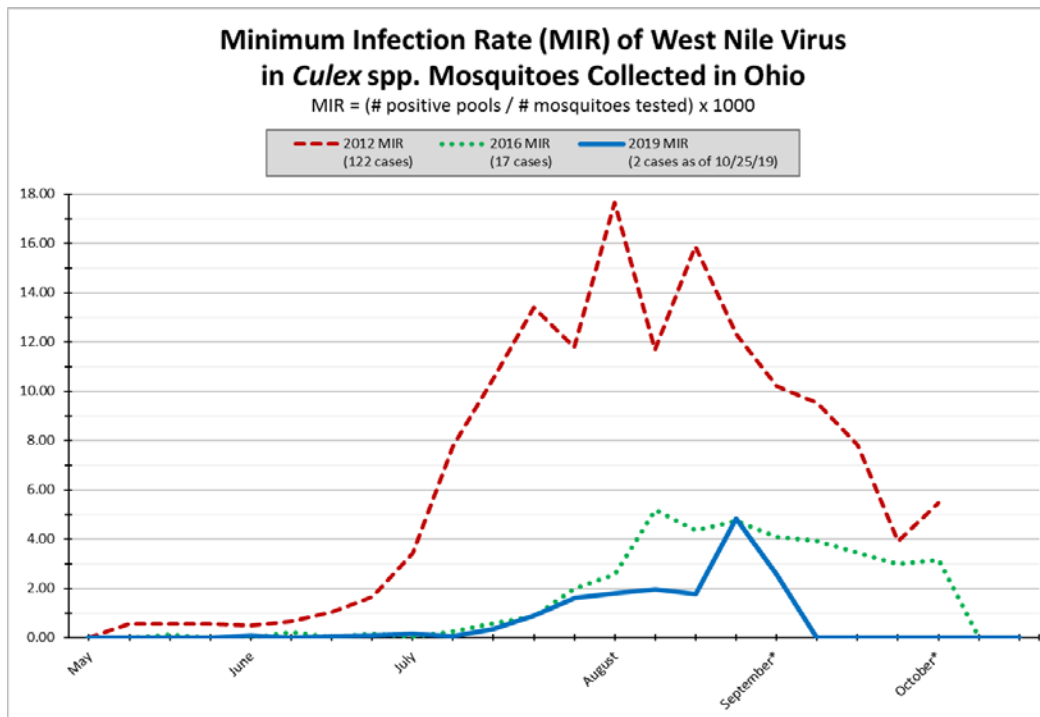
**Mosquito testing (Table 6):** Based on the ODH mosquito testing summary released on October 31, over 91,468 mosquitoes were collected as 2,317 pooled samples throughout Summit County. 36 of the pooled samples tested positive for West Nile virus.

Mosquitoes identified	91,468
Pooled samples tested	2,317
Positive WNV pooled samples	36

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

## OHIO SURVEILLANCE

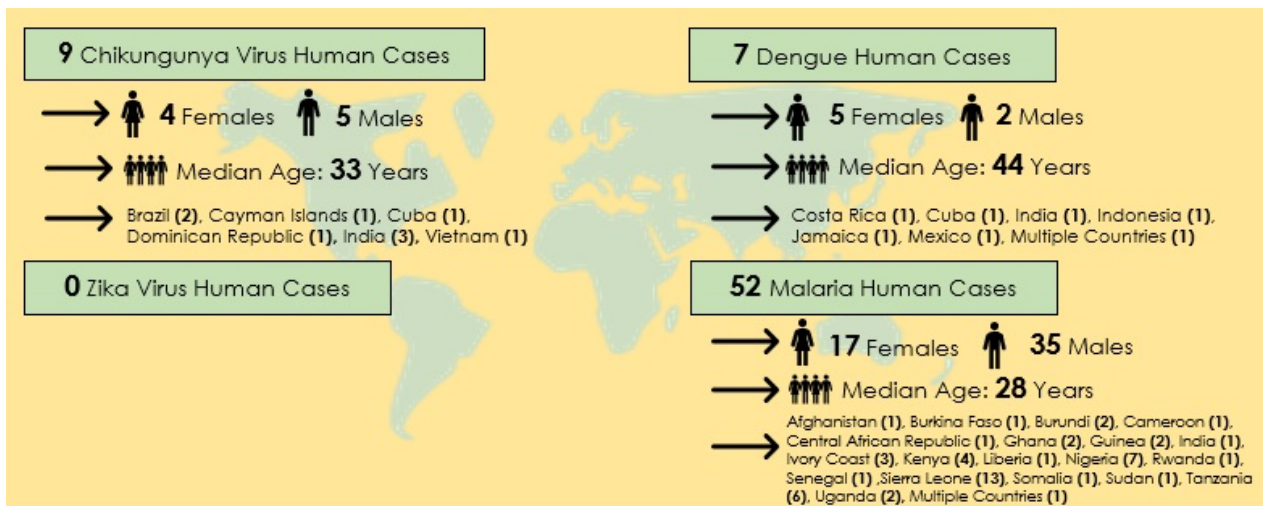
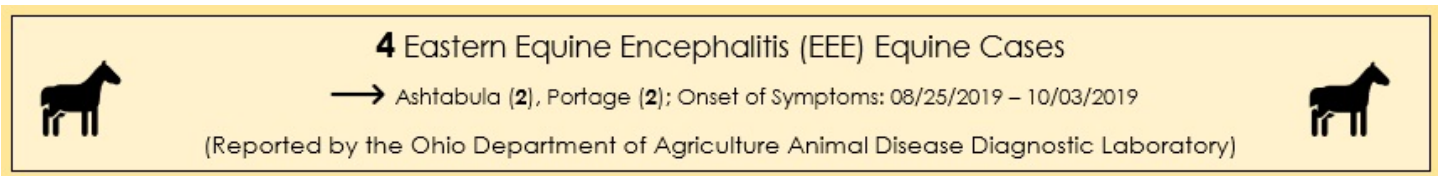
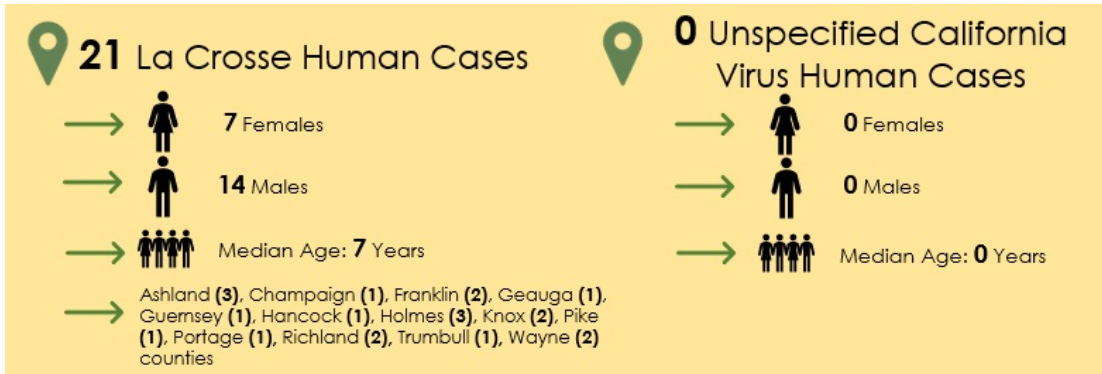
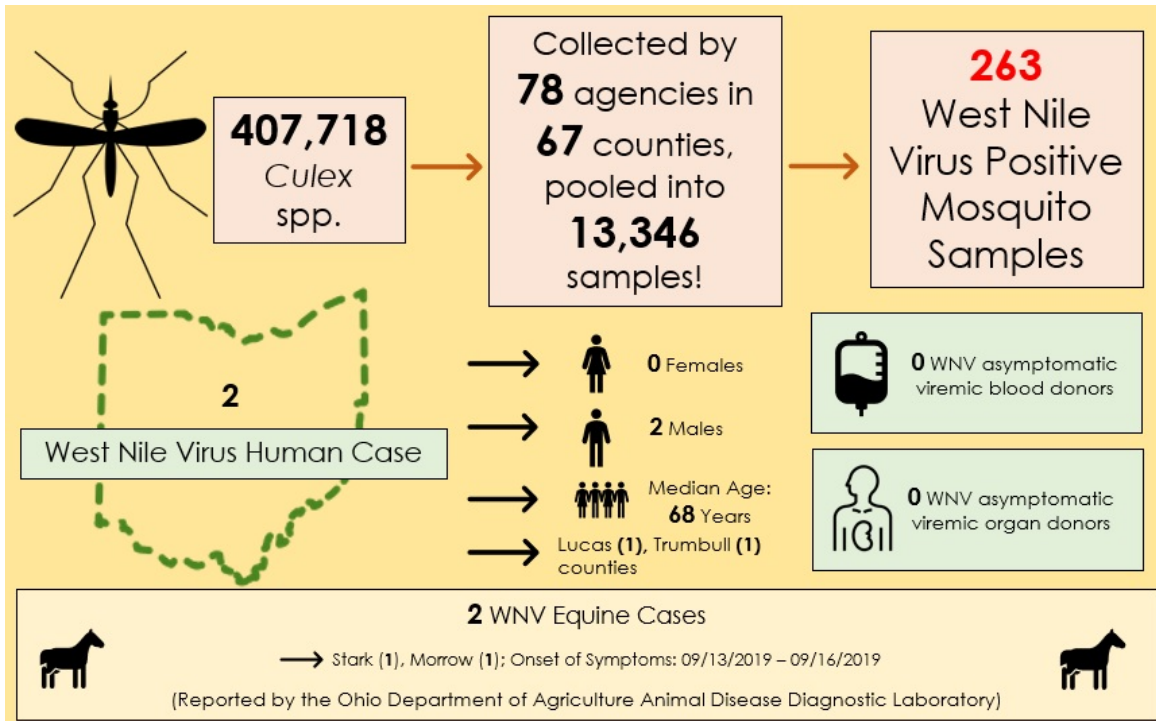
**Figure 1. Minimum infection rate (MIR) of West Nile Virus in *Culex spp.* collected in Ohio as of 10/25/2019**



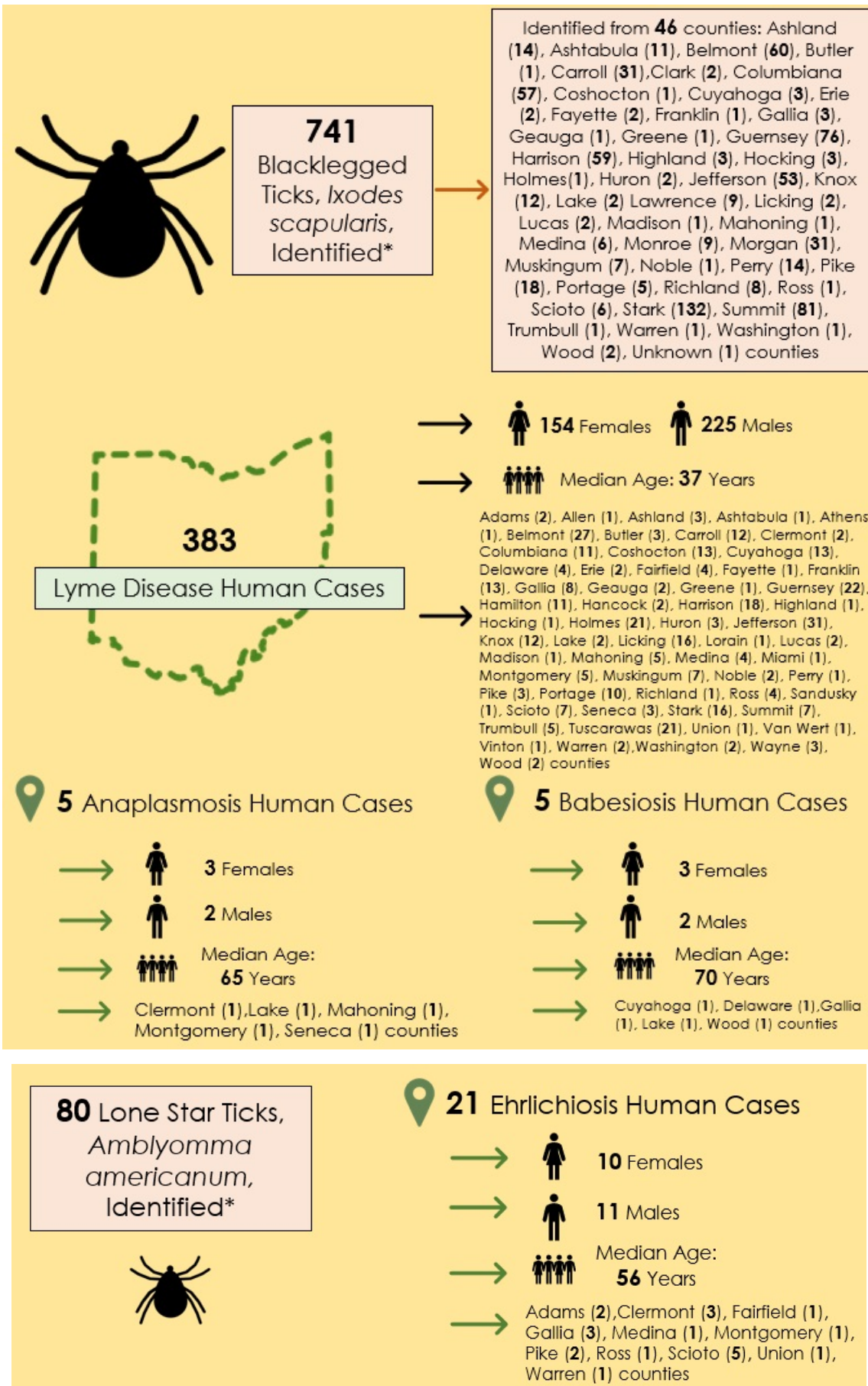
West Nile virus infection rates peaked at 4.81 in late August, but remained below average in Ohio (Figure 1). Routine testing of mosquitoes in Ohio officially ended on September 7, but mosquitos suspected of being positive were tested through the end of the season. 263 mosquito pools in Ohio tested positive for West Nile virus, including 36 pools in Summit County. At this time in 2018, Summit County had 646 mosquito pools that tested positive for West Nile virus.

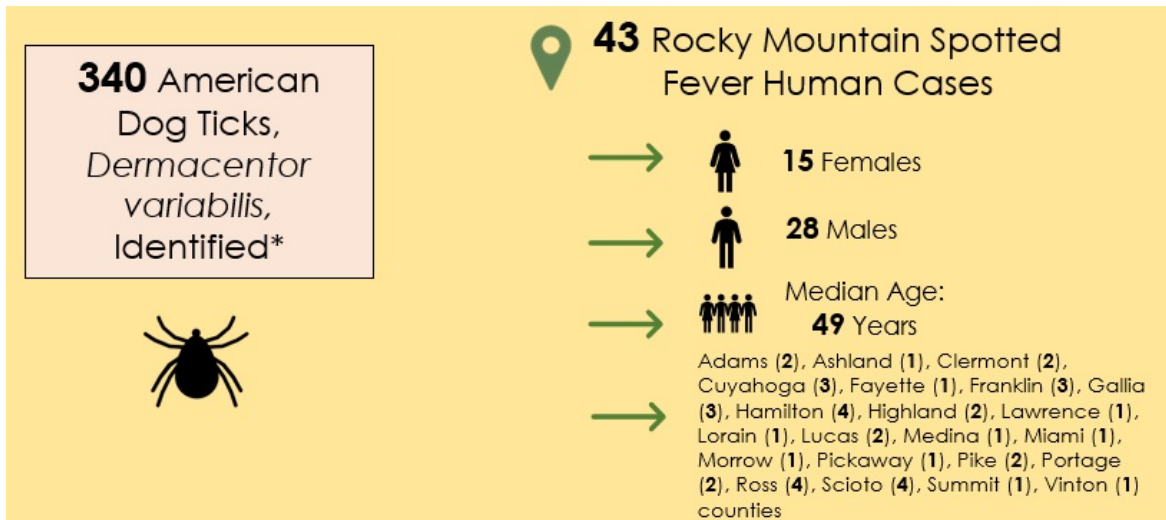
Source: Ohio Department of Health

**Ohio Mosquito-borne diseases (as of 10/31/2019):**



**Ohio Tick-borne diseases (as of 10/31/2019):**





Source: [Ohio Department of Health Vector Borne Disease Updates](#)

**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 and tick bites. Additional information can be found from the [Centers for Disease Control and Prevention \(CDC\)'s Travelers' Health](#) and [Pan-American Health Organization](#) websites.

## OHIO AND UNITED STATES SURVEILLANCE

Table 7. Reported Vector Borne disease in Ohio and the United States, 2019

Disease	OHIO	UNITED STATES	
	2019 (as of 10/26) cumulative	Weeks 21 and 22 (10/13 to 10/26)	2019 (as of 10/26) Cumulative
Babesiosis	7	28	1959
Chikungunya	11	0	89
Dengue (includes dengue-like illness)	8	14	825
Eastern equine encephalitis	0	0	36
Ehrlichiosis / anaplasmosis	30	47	5614
Jamestown Canyon virus disease	0	0	22
LaCrosse virus disease	20	0	36
Lyme Disease	515	Not reported weekly by CDC	
Malaria	53	16	1305
Powassan virus disease	0	0	26
Spotted fever rickettsiosis	68	14	3555
St. Louis encephalitis virus disease	0	0	11
West Nile virus infection	2	2	805
Zika virus infection, non-congenital	0	1	15

**Note:** Data is provisional and subject to change

Source: [https://wonder.cdc.gov/nndss/nndss\\_weekly\\_tables\\_menu.asp](https://wonder.cdc.gov/nndss/nndss_weekly_tables_menu.asp)

**Figure 2. West Nile virus activity by state – United States, 2019 (as of October 29, 2019)**



**WNV infections in mosquitoes, birds, sentinel animals, or veterinary animals** have been reported to CDC ArboNET from all 48 contiguous states except: Maine and West Virginia.

**West Nile virus infections in humans** have been reported to CDC ArboNET from all 48 contiguous states except: Delaware, Maine, New Hampshire, Rhode Island, Vermont, and West Virginia.

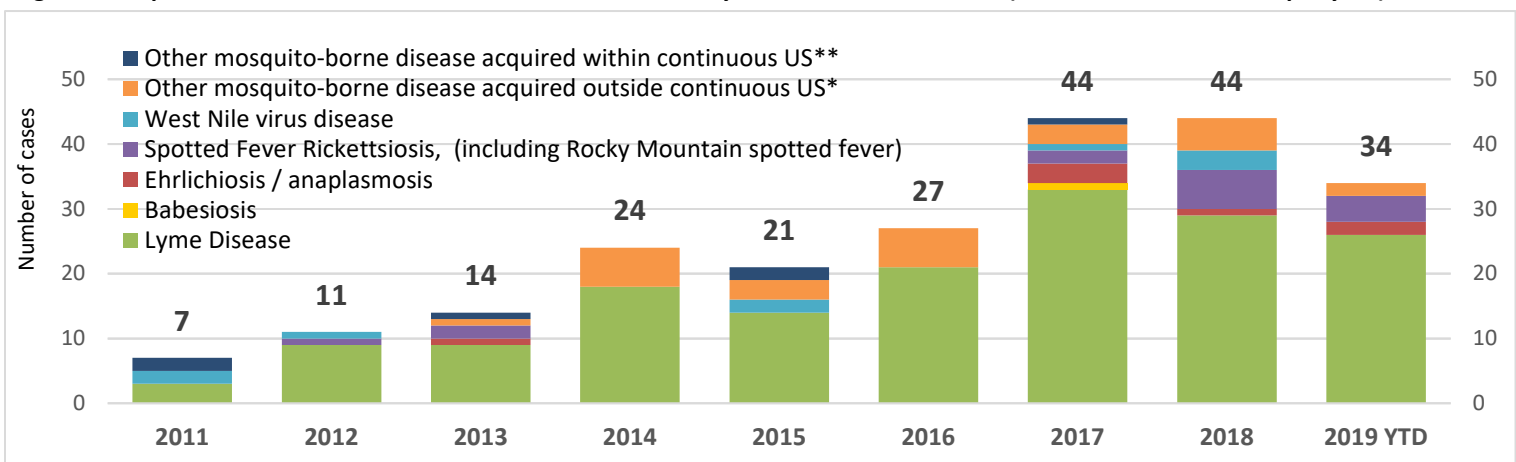
Source: <https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2019/activitybystate2019.html>

## VECTOR BORNE DISEASE SEASON SUMMARY

**Table 8. Reported vector-borne disease cases in Summit County, 1/1/2011 - 10/31/2019**

	2011	2012	2013	2014	2015	2016	2017	2018	2019 YTD
Babesiosis	0	0	0	0	0	0	1	0	0
Ehrlichiosis / anaplasmosis	0	0	1	0	0	0	3	1	2
Lyme Disease	3	9	9	18	14	21	33	29	26
Spotted Fever Rickettsiosis (Rocky Mountain spotted fever)	0	1	2	0	0	0	2	6	4
West Nile virus disease	2	1	0	0	2	0	1	3	0
Other mosquito-borne disease acquired outside continuous US*	0	0	1	6	3	6	3	5	2
Other mosquito-borne disease acquired within continuous US**	2	0	1	0	2	0	1	0	0
<b>TOTAL</b>	<b>7</b>	<b>11</b>	<b>14</b>	<b>24</b>	<b>21</b>	<b>27</b>	<b>44</b>	<b>44</b>	<b>34</b>

**Figure 3. Reported vector-borne disease cases in Summit County, 1/1/2011 - 10/31/2019 (numbers are total cases per year)**

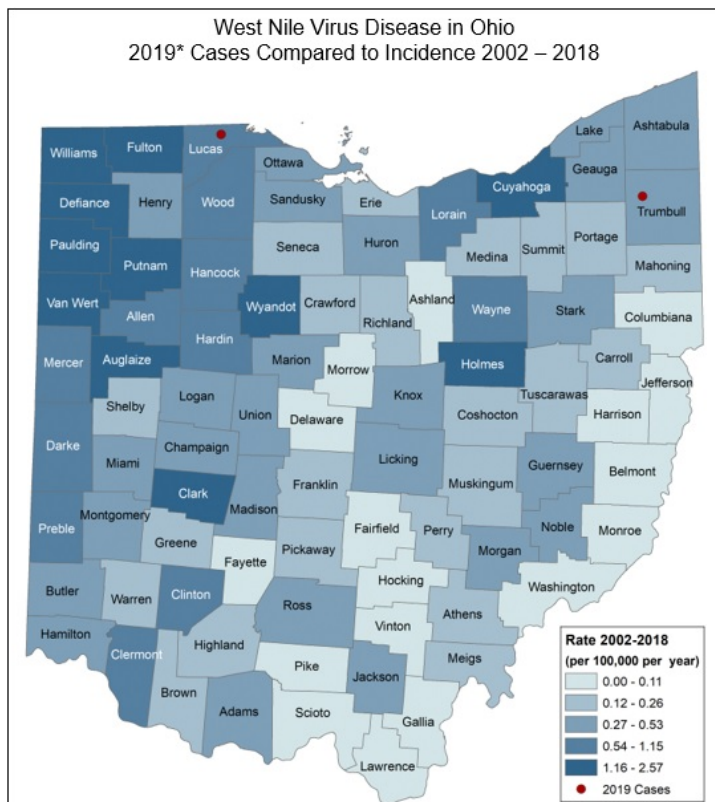


Notes: \* Includes imported cases of malaria, chikungunya, dengue, and Zika virus infection

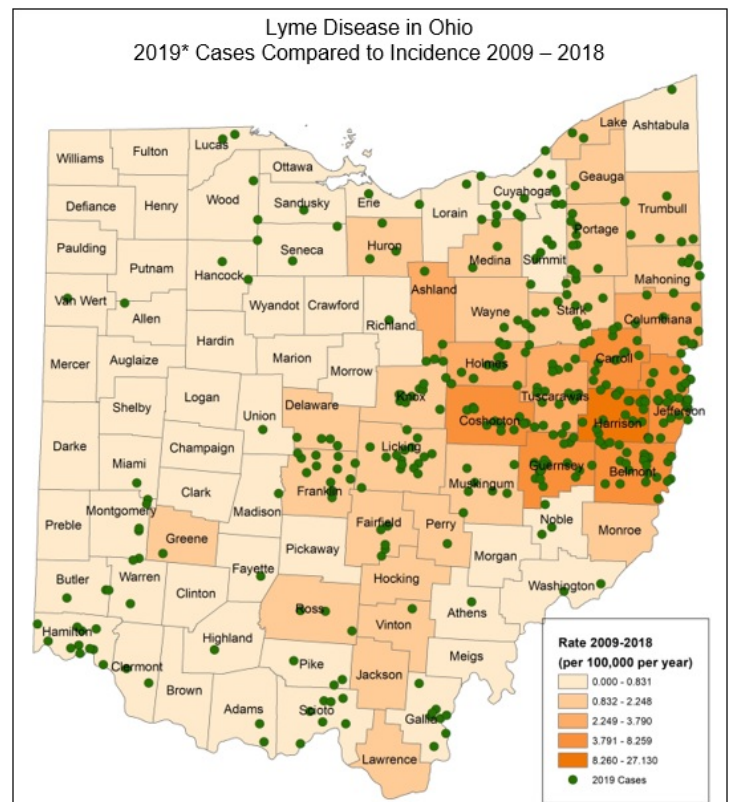
\*\* Includes LaCrosse virus disease and St. Louis encephalitis virus disease

Source: Ohio Disease Reporting System (ODRS)

Figures 4 and 5. West Nile and Lyme disease cases in Ohio



Source: Ohio Department of Health  
 \* Data as of 10/08/2019, 2 cases  
 County-level data are based on county of residence of the case



Source: Ohio Department of Health  
 \* Data as of 11/01/2019, 383 cases  
 County-level data are based on the county of residence of the case

Ohio West Nile Virus Disease Annual Human Case Statistics						
Year	Human Cases	Deaths	Median Age (Years)	Age Range of Cases (Years)	Earliest Date of Symptom Onset	Asymptomatic Blood Donors
2001	0	0	n/a	n/a	n/a	n/a
2002	441	31	61	2 – 98	n/a	n/a
2003	108	8	49	11 – 90	n/a	6
2004	12	2	49.5	12 – 87	Jul 5	1
2005	61	2	53	22 – 96	Jun 14	14
2006	48	4	57.5	2 – 86	Aug 1	10
2007	23	3	52	11 – 86	Jul 12	9
2008	15	1	57	20 – 86	Jul 9	1
2009	2	0	36.5	11 – 62	Aug 27	0
2010	5	0	46	4 – 74	Jul 9	0
2011	21	1	55	14 – 83	Aug 1	6
2012	122	7	57.5	4 – 91	Jul 10	13
2013	24	4	71.5	38 – 82	Jul 29	4
2014	11	1	65	19 – 79	Jul 27	0
2015	35	2	65	14 – 91	Jul 9	10
2016	17	4	66	4 – 84	Jul 28	4
2017	34	5	59	6 – 82	Jul 24	8
2018	65	6	61	5 – 89	Jun 23	16
AVERAGE	58	4.5	57	n/a	n/a	6
TOTAL	1,044	81	n/a	n/a	n/a	102

Ohio Lyme Disease Annual Case Statistics					
Year	Human Cases	Deaths	Median Age (Years)	Age Range of Cases (Years)	Counties with Reported Lyme Cases
2009	58	0	36.5	2-77	27
2010	44	0	34.5	3-62	24
2011	53	0	34	5-84	25
2012	67	0	33	3 - 86	30
2013	93	0	43	2 - 84	34
2014	119	0	35	1 - 78	32
2015	154	0	41	1 - 85	45
2016	160	0	37	3 - 85	40
2017	270	0	40	3-86	44
2018	293	0	33	1-90	50
AVG	131	0	37	n/a	35
TOTAL	1,063	0	n/a	n/a	n/a

Source: <https://odh.ohio.gov/wps/portal/gov/odh/know-our-programs/zoonotic-disease-program/news-and-events/vectorborne-disease-update>

**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@schd.org) or Tracy Rodriguez (trodriguez@schd.org), Summit County Public Health Communicable Disease Unit (330-375-2662). This report was issued on **November 5, 2019**.