



Vector Borne Disease 2020 Surveillance Report

Summit County Public Health



Final Report Weeks 21 and 22 (October 11 to 24, 2020)
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 vector-borne diseases are still a concern). Surveillance will include human cases and testing of mosquito pools in Summit County. It will also include updates from Ohio and around the nation. It will include all vector-borne diseases that are prevalent in the Ohio and the region.

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: 5/24 to 6/6	3	0	3	0	0.0%
Weeks 3 & 4: 6/7 to 6/20	9	1	12	1	8.3%
Weeks 5 & 6: 6/21 to 7/4	6	0	18	1	5.6%
Weeks 7 & 8: 7/5 to 7/18	7	0	25	1	4.0%
Weeks 9 & 10: 7/19 to 8/1	8	1	33	2	6.1%
Weeks 11 & 12: 8/2 to 8/15	8	1	41	3	7.3%
Weeks 13 & 14: 8/16 to 8/29	6	0	47	3	6.5%
Weeks 15 & 16: 8/30 to 9/12	12	0	59	3	5.1%
Weeks 17 & 18: 9/13 to 9/26	7	0	66	3	4.6%
Weeks 19 & 20: 9/27 to 10/10	3	0	69	3	4.4%
Weeks 21 & 22: 10/11 to 10/24	2	0	71	3	4.2%

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 2 tests for West Nile virus ordered by Summit County hospitals, none were positive. So far this season, there have been 3 positive results for IgG antibody only for the West Nile virus, which is an indication of immunity due to a past exposure and were not active infections.

Lyme disease testing (Table 2): There were 47 diagnostic test series performed for Lyme disease during Weeks 21 and 22, with 6 positive or indeterminate test results. 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 and the case is confirmed only if the EIA/IFA and the immunoblot are both positive.

Table 2. Lyme Disease Tests Ordered in Summit County Hospitals

Week(s)	# of Lyme tests ordered this period	# of positive or indeterminate Lyme tests this period	Cumulative # of tests ordered this season	Cumulative # of positive or indeterminate tests this season	Percentage of positive or indeterminate tests
Weeks 1 & 2: 5/24 to 6/6	41	5	41	5	12.2%
Weeks 3 & 4: 6/7 to 6/20	48	11	89	16	18.0%
Weeks 5 & 6: 6/21 to 7/4	76	13	165	29	17.6%
Weeks 7 & 8: 7/5 to 7/18	81	21	246	50	20.3%
Weeks 9 & 10: 7/19 to 8/1	57	14	303	64	21.1%
Weeks 11 & 12: 8/2 to 8/15	62	6	365	69	18.9%
Weeks 13 & 14: 8/16 to 8/29	54	10	419	79	18.9%
Weeks 15 & 16: 8/30 to 9/12	52	5	471	84	17.8%
Weeks 17 & 18: 9/13 to 9/26	48	7	519	91	17.5%
Weeks 19 & 20: 9/27 to 10/10	58	8	577	99	17.2%
Weeks 21 & 22: 10/11 to 10/24	47	6	624	105	16.8%

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

Reported Vector-borne diseases in 2020 for Summit County residents (Table 3): As of October 24, there were 36 reported cases of Lyme disease; three were confirmed and the remaining 33 were suspected. Also reported were two confirmed cases of LaCrosse virus disease, one suspected case of Ehrlichiosis and one suspected case of babesiosis.

Table 3: Vector-borne diseases reported in Summit County, 2020 cumulative totals

	Confirmed	Suspected	Notes
Tick-borne diseases:			
Babesiosis	0	1	
Ehrlichiosis / anaplasmosis	0	1	
Lyme disease	3	33	
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	2	0	
Malaria	0	0	
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
Mosquito species		
<i>Aedes albopictus</i>	Chikungunya, dengue fever, yellow fever	1
<i>Aedes triseriatus</i>	La Crosse encephalitis	85
<i>Coquilleltidia perturbans</i>	Eastern equine encephalitis, West Nile virus	140
Tick species		
<i>Amblyomma americanum</i>	Ehrlichiosis, tularemia, red meat allergy	1
<i>Dermacentor variabilis</i>	Rocky Mountain spotted fever, tularemia	31
<i>Ixodes scapularis</i>	Lyme disease, babesiosis, anaplasmosis	15

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

Week(s)	Cases reported this period	Cumulative cases for the season
Aseptic meningitis cases reported prior to season (1/1 to 5/23/2020)	5	-
Weeks 1 & 2: 5/24 to 6/6	1	1
Weeks 3 & 4: 6/7 to 6/20	0	1
Weeks 5 & 6: 6/21 to 7/4	1	2
Weeks 7 & 8: 7/5 to 7/18	0	2
Weeks 9 & 10: 7/19 to 8/1	2	4
Weeks 11 & 12: 8/2 to 8/15	0	4
Weeks 13 & 14: 8/16 to 8/29	0	4
Weeks 15 & 16: 8/30 to 9/12	0	4
Weeks 17 & 18: 9/13 to 9/26	1	5
Weeks 19 & 20: 9/27 to 10/10	1	6
Weeks 21 & 22: 10/11 to 10/24	0	6

Source: Ohio Disease Reporting System (ODRS)

Reported aseptic/viral meningitis cases (Table 5): Prior to the reporting season, there were five reported cases of aseptic meningitis. No cases were reported during Weeks 21 and 22, keeping the season total to six cases. 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.

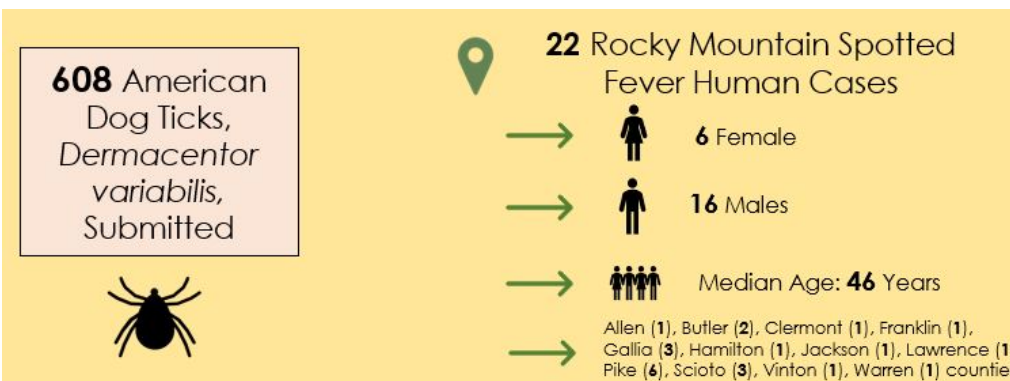
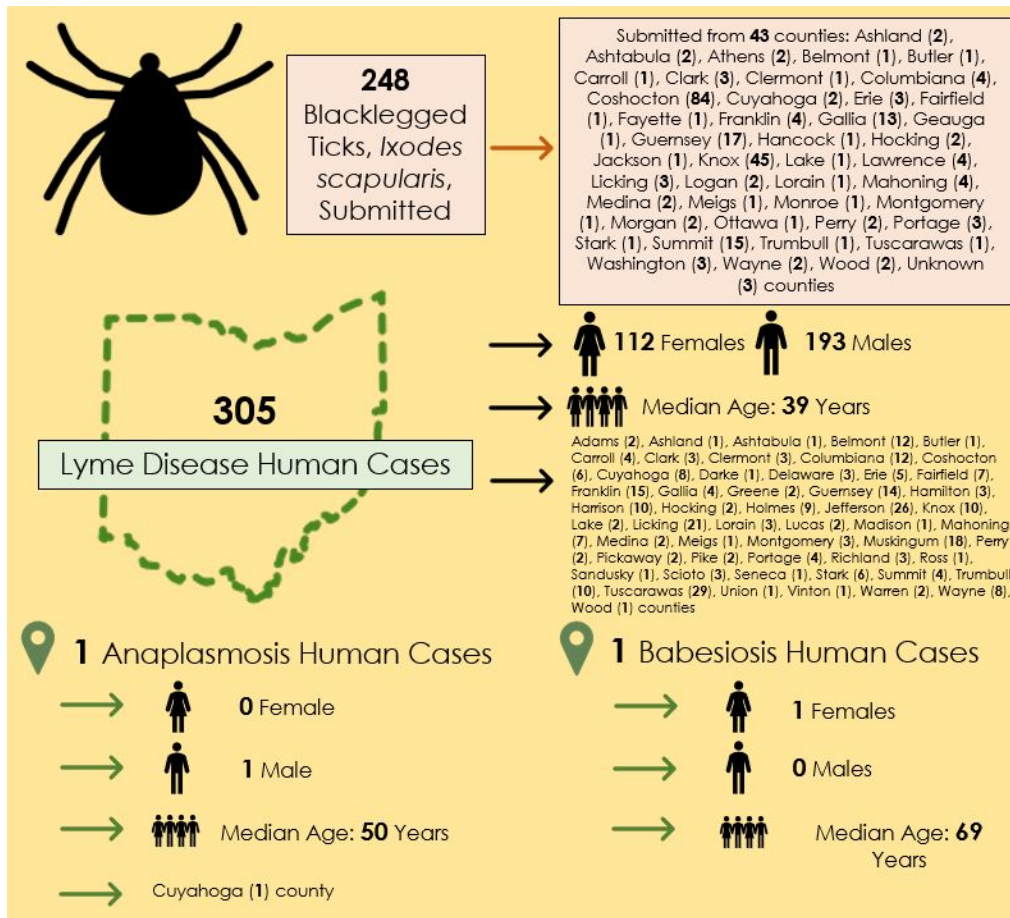
Mosquito testing (Table 6): Based on the ODH mosquito testing summary released on October 29, 11,279 mosquitoes were collected throughout Summit County, and 2,311 *Culex spp.* were combined as pooled samples. 108 of the pooled samples were tested for West Nile virus, and two were positive.

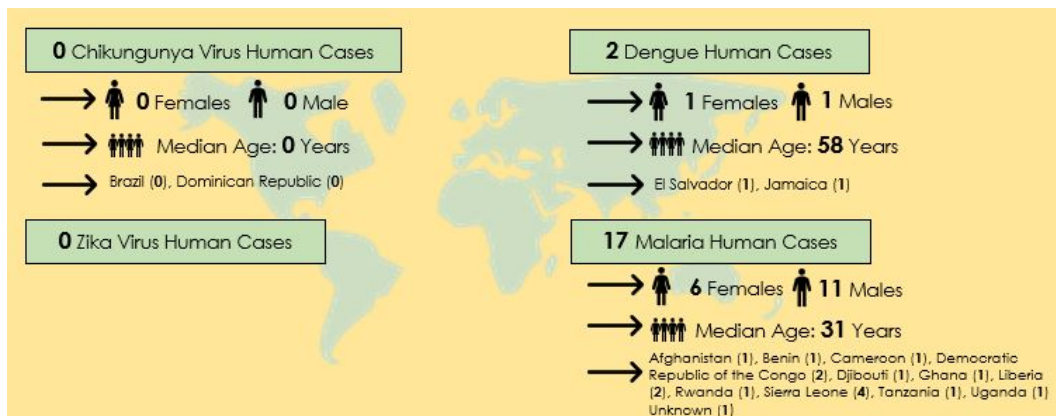
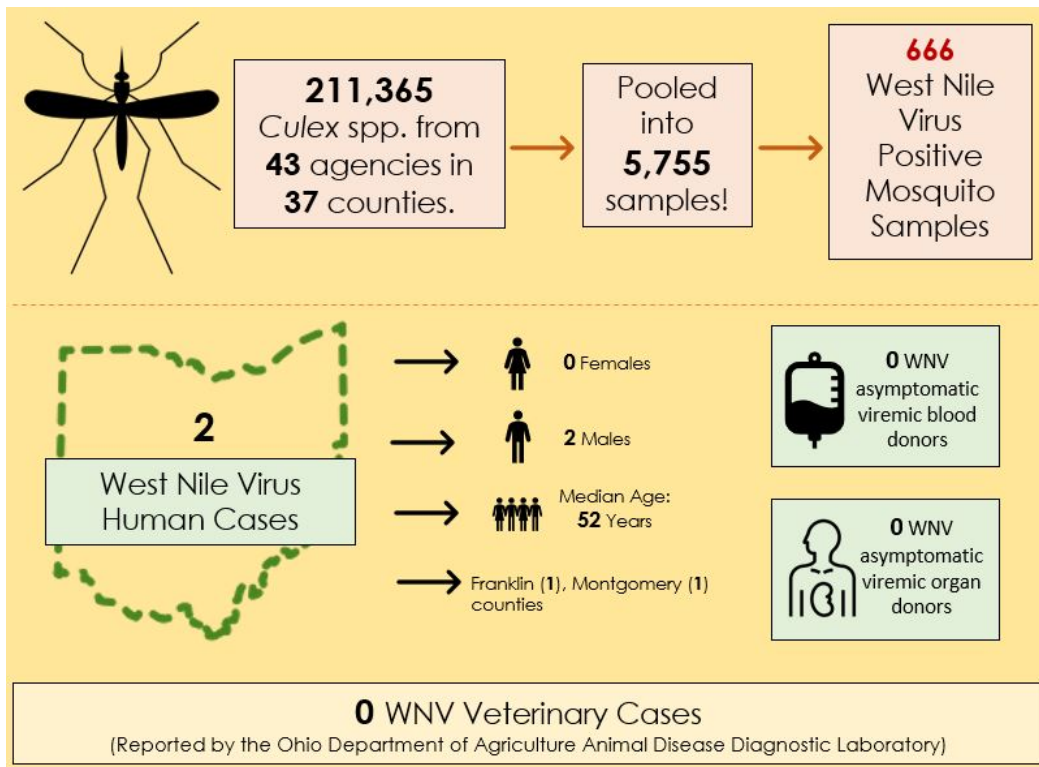
Mosquitoes identified	11,279
Pooled samples tested	108
Positive WNV pooled samples	2

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

OHIO (GRAPHICS AS OF 11/2/2020) AND UNITED STATES SURVEILLANCE

(Note: Totals in these graphics are based CDC totals and represent finalized case counts. These will differ from the state totals in Table 7 due to reporting lags and case review by CDC)





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

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.

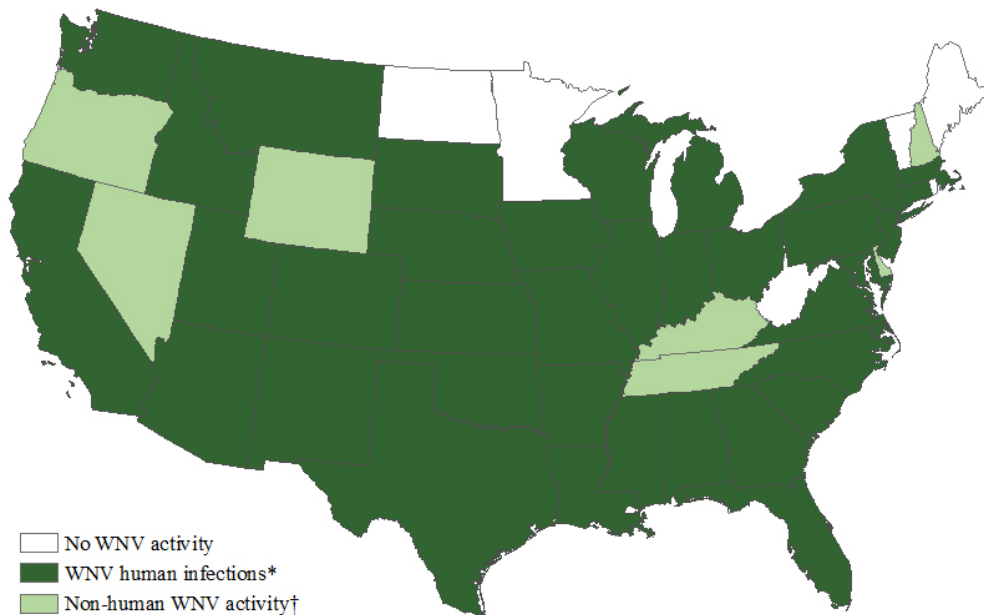
Table 7. Reported Vector Borne disease in Ohio and the United States, 2020

Disease	OHIO	UNITED STATES	
	2020 (as of 10/10) cumulative*	Weeks 21 (10/11 to 10/18)*	2020 (as of 10/18) Cumulative*
Babesiosis	7	4	1393
Chikungunya	1	0	19
Dengue (includes dengue-like illness)	2	3	270
Eastern equine encephalitis	0	0	9
Erlchiosis / anaplasmosis	40	34	3669
Jamestown Canyon virus disease	0	0	7
LaCrosse virus disease	24	0	63
Lyme Disease	1268	Not reported weekly by CDC	
Malaria	19	1	318
Powassan virus disease	0	0	13
Spotted fever rickettsiosis	148	Not reported weekly by CDC	
St. Louis encephalitis virus disease	0	0	6
West Nile virus infection	2	4	402
Zika virus infection, non-congenital	0	0	2

Note: Data is provisional and subject to change
 * Due to the COVID-19 pandemic, the most current state and national case counts were not available

Source: https://wonder.cdc.gov/nndss/nndss_weekly_tables_menu.asp and Ohio Disease Reporting System (ODRS)

Figure 1. West Nile virus activity by state – United States, 2020 (as of October 20, 2020)



West Nile virus infections in humans have been reported to CDC ArboNET from the following states: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maryland, Massachusetts, Michigan, Mississippi, Missouri, Montana, Nebraska, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Texas, Utah, Virginia, Washington, and Wisconsin.

*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.

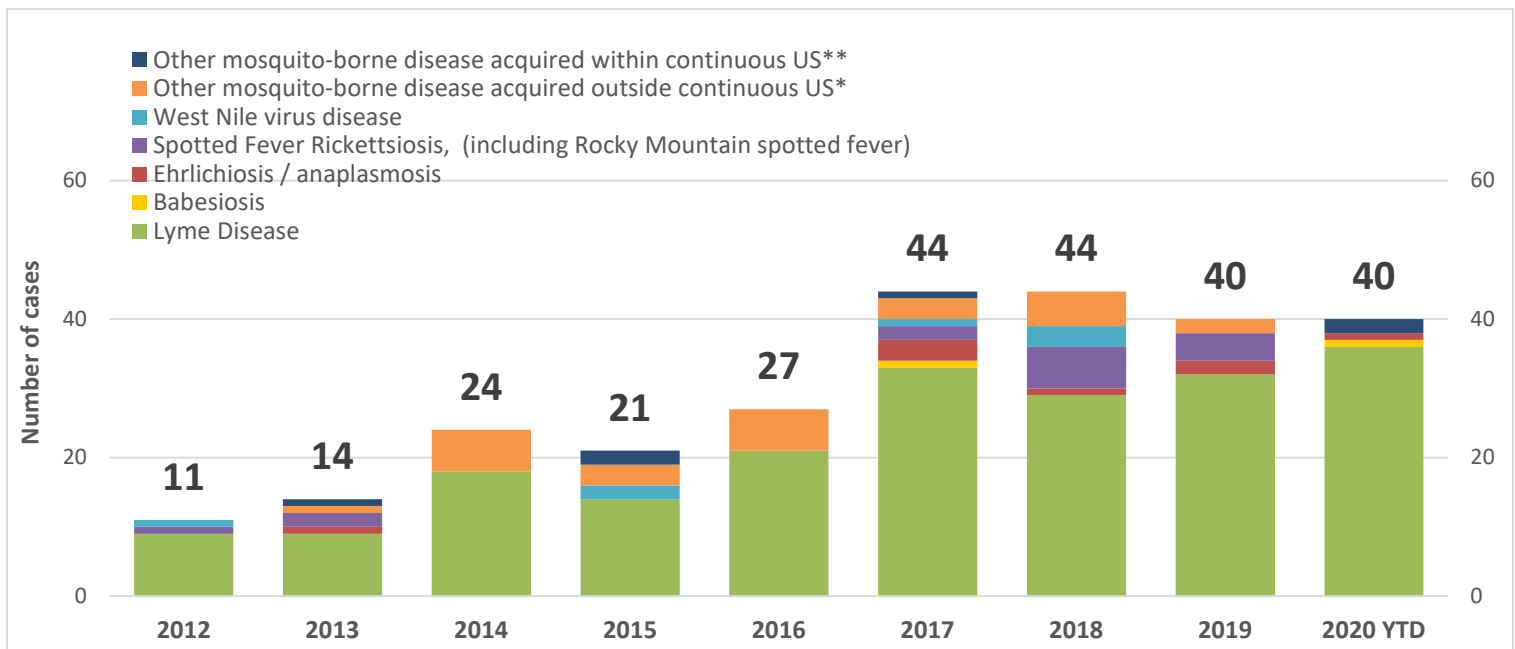
Source: <https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2020/activitybystate2020.html>

VECTOR BORNE DISEASE SEASON SUMMARY

Table 8. Reported vector-borne disease cases in Summit County, 1/1/2011 - 10/24/2020

	2012	2013	2014	2015	2016	2017	2018	2019	2020 YTD
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	36
Spotted Fever Rickettsiosis (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
TOTAL	11	14	24	21	27	44	44	40	40

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)

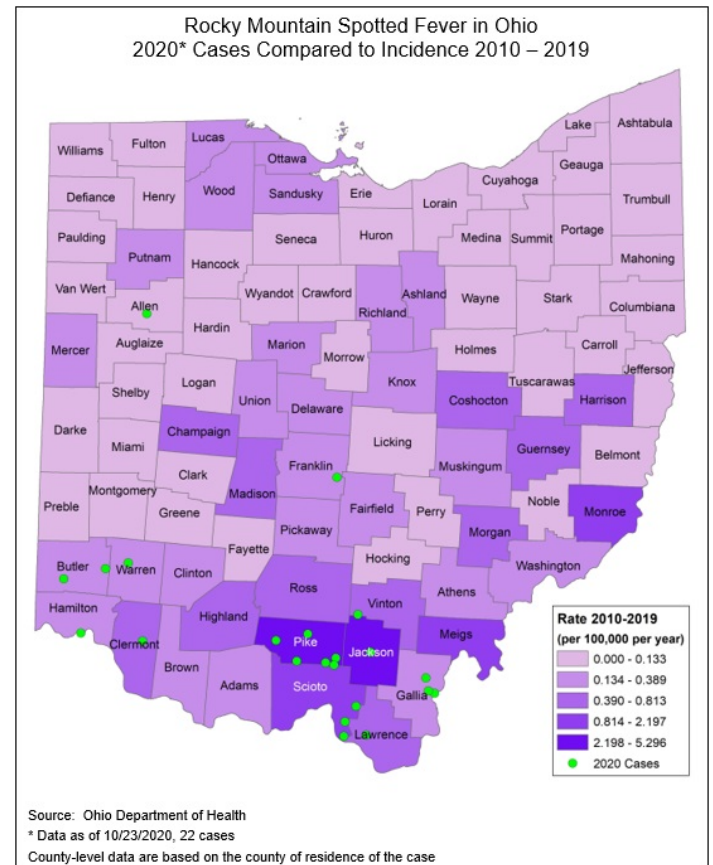
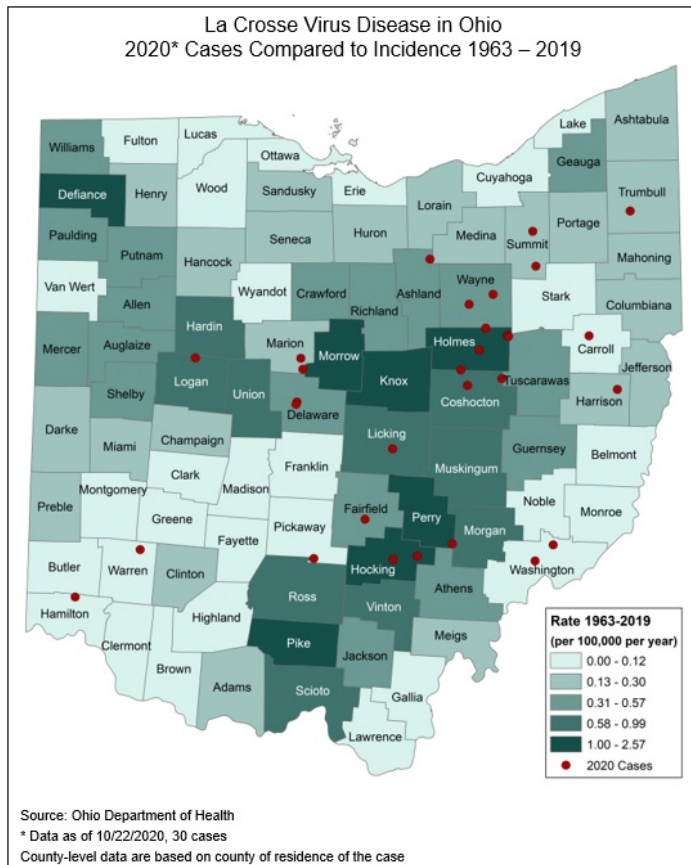
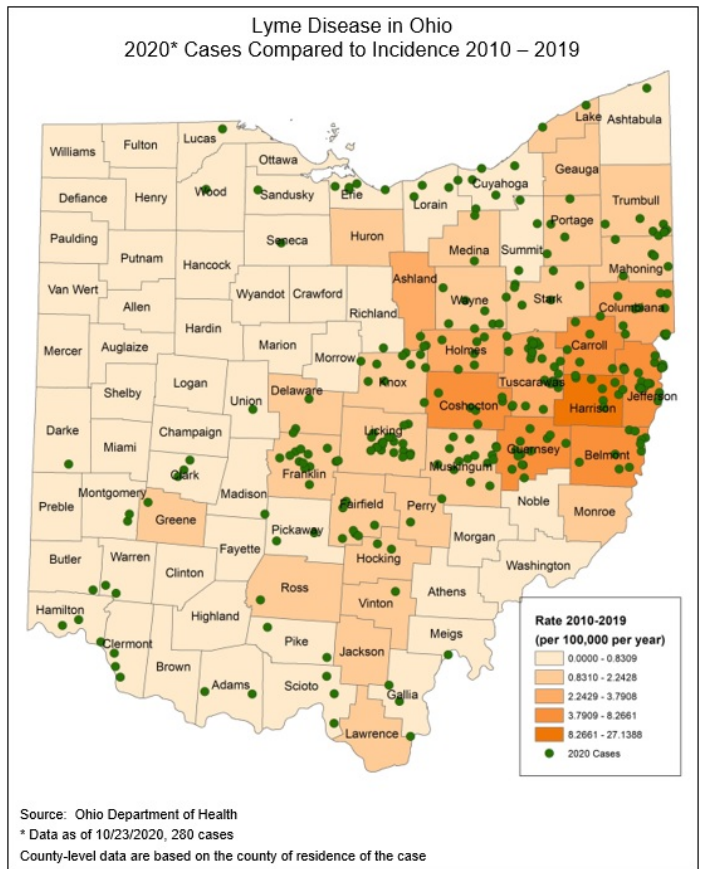
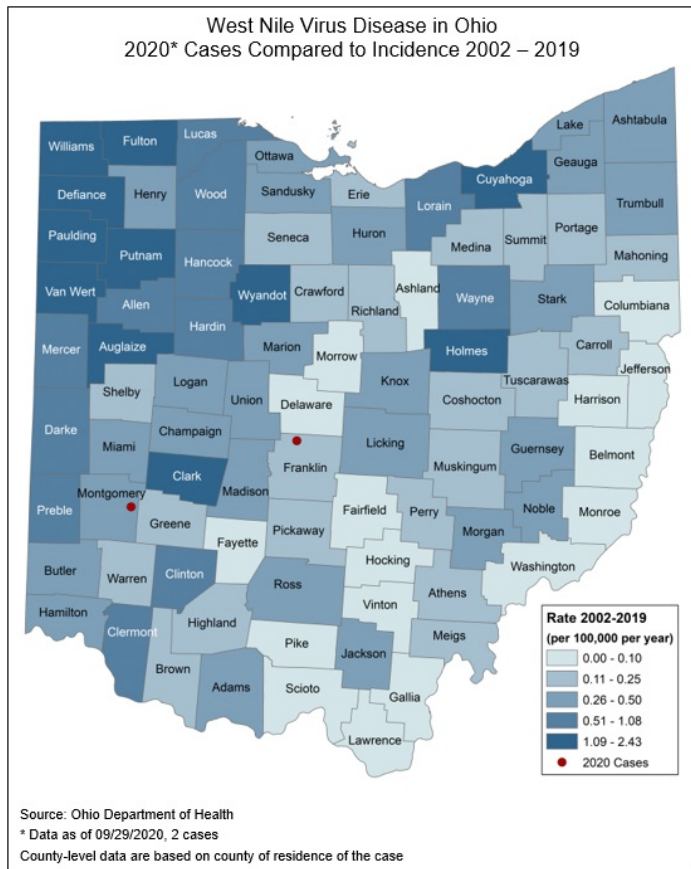
Source: <https://odh.ohio.gov/wps/portal/gov/odh/know-our-programs/zoonotic-disease-program/news-and-events/vectorborne-disease-update>

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 the Summit County Public Health Communicable Disease Unit (330-375-2662). This report was issued on **November 5, 2020**.

Figures 4 - 7. Selected Ohio vector-borne disease case maps



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