



# Vector Borne Disease 2023 Surveillance Report

Summit County Public Health



**Public Health**  
Prevent. Promote. Protect.

Report Weeks 21 and 22 (October 8 to October 21, 2023)  
MMWR Weeks 41 and 42

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

**Reported Vector-borne diseases in 2023 (Table 3):** As of October 21, there have been 166 reported cases of Lyme disease; 32 are confirmed and 129 are suspected status. Within this reporting period, 1 probable case of West Nile Virus has been reported. In addition there are also 2 confirmed cases and 1 suspected case of Ehrlichiosis / anaplasmosis, 1 suspected case of Dengue (imported), 1 confirmed and 1 suspected case of Babesiosis, 1 probable and 1 suspected case of Rocky Mountain spotted fever and 6 confirmed cases of Malaria (imported) among Summit County residents.

**Table 1: Vector-borne disease cases reported in Summit County, 2023 cumulative totals**

|                                      | Confirmed | Probable | Suspected | Notes                                 |
|--------------------------------------|-----------|----------|-----------|---------------------------------------|
| <b>Tick-borne diseases:</b>          |           |          |           |                                       |
| Babesiosis                           | 1         | 0        | 1         |                                       |
| Ehrlichiosis / anaplasmosis          | 2         | 0        | 1         |                                       |
| Lyme disease                         | 32        | 5        | 129       |                                       |
| Powassan virus disease               | 0         | 0        | 0         |                                       |
| Rocky Mountain spotted fever         | 0         | 1        | 1         |                                       |
| <b>Mosquito-borne diseases:</b>      |           |          |           |                                       |
| Chikungunya                          | 0         | 0        | 0         |                                       |
| Dengue                               | 0         | 0        | 1         | Associated with international travel. |
| Eastern equine encephalitis          | 0         | 0        | 0         |                                       |
| LaCrosse virus disease               | 0         | 0        | 0         |                                       |
| Malaria                              | 6         | 0        | 0         | Associated with international travel. |
| St. Louis encephalitis virus disease | 0         | 0        | 0         |                                       |
| Zika virus infection                 | 0         | 0        | 0         |                                       |
| West Nile virus infection            | 0         | 1        | 0         |                                       |

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

**\*\*Data in Table 2 and Table 3 are based on the laboratory information submitted by participating Summit County Hospital Laboratories. While a test associated with West Nile Virus (WNV) may be positive, it does not directly confirm an active human case. More information regarding laboratory testing for WNV can be found here:**

<https://www.cdc.gov/westnile/healthcareproviders/healthCareProviders-Diagnostic.html>\*\*

**West Nile virus testing (Table 1):** During surveillance period weeks 21 and 22, there were 12 laboratory tests for West Nile Virus ordered by Summit County hospitals, none of the results were positive.

| 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 this season |
|------------------------------|------------------------------------|-------------------------------------|---|--|--|
| Weeks 1 & 2: 5/21 to 6/3     | 3                                  | 1                                   | 3   | 1  | 33.3%                                    |
| Weeks 3 & 4: 6/4 to 6/17     | 5                                  | 0                                   | 8   | 1  | 12.5%                                    |
| Weeks 5 & 6: 6/18 to 7/1     | 4                                  | 0                                   | 12  | 1  | 8.3%                                     |
| Weeks 7 & 8: 7/2 to 7/15     | 14                                 | 1                                   | 26  | 2  | 7.7%                                     |
| Weeks 9 & 10: 7/16 to 7/29   | 7                                  | 0                                   | 33  | 2  | 6.1%                                     |
| Weeks 11 & 12: 7/30 to 8/12  | 4                                  | 0                                   | 37  | 2  | 5.4%                                     |
| Weeks 13 & 14: 8/13 to 8/26  | 1                                  | 0                                   | 38  | 2  | 5.3%                                     |
| Weeks 15 & 16: 8/27 to 9/9   | 4                                  | 0                                   | 42  | 2  | 4.8%                                     |
| Weeks 17 & 18: 9/10 to 9/23  | 6                                  | 2                                   | 48  | 4  | 8.3%                                     |
| Weeks 19 & 20: 9/24 to 10/7  | 12                                 | 0                                   | 60  | 4  | 6.7%                                     |
| Weeks 21 & 22: 10/8 to 10/21 | 12                                 | 0                                   | 72  | 4  | 5.4%                                     |

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

**Lyme disease testing (Table 2):** There were 41 diagnostic test series performed for Lyme disease during Weeks 21 and 22. 4 tests were positive. For information about Diagnosis and Testing, visit this link:

<https://www.cdc.gov/lyme/diagnostictesting/index.html>.

| 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 this season |
|------------------------------|-------------------------------------|--------------------------------------|---|--|--|
| Weeks 1 & 2: 5/21 to 6/3     | 39                                  | 13                                   | 39  | 13   | 33.3%                                    |
| Weeks 3 & 4: 6/4 to 6/17     | 81                                  | 11                                   | 120                                       | 24   | 20.0%                                    |
| Weeks 5 & 6: 6/18 to 7/1     | 103                                 | 10                                   | 223                                       | 34   | 15.2%                                    |
| Weeks 7 & 8: 7/2 to 7/15     | 108                                 | 13                                   | 331                                       | 47   | 14.2%                                    |
| Weeks 9 & 10: 7/16 to 7/29   | 110                                 | 14                                   | 441                                       | 61   | 13.8%                                    |
| Weeks 11 & 12: 7/30 to 8/12  | 112                                 | 17                                   | 553                                       | 78   | 14.1%                                    |
| Weeks 13 & 14: 8/13 to 8/26  | 88                                  | 13                                   | 641                                       | 91   | 14.2%                                    |
| Weeks 15 & 16: 8/27 to 9/9   | 55                                  | 2                                    | 696                                       | 93   | 13.4%                                    |
| Weeks 17 & 18: 9/10 to 9/23  | 58                                  | 7                                    | 754                                       | 100  | 13.3%                                    |
| Weeks 19 & 20: 9/24 to 10/7  | 56                                  | 11                                   | 810                                       | 111  | 13.7%                                    |
| Weeks 21 & 22: 10/8 to 10/21 | 41                                  | 4                                    | 851                                       | 115  | 13.5%                                    |

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

| Species name                   | Diseases associated                          | Summit County | Ohio  |
|--------------------------------|--|---------------|-------|
| <b>Mosquito species</b>        |  |               |       |
| <i>Aedes albopictus</i>        | Chikungunya, dengue fever, yellow fever      | 6             | 6,775 |
| <i>Aedes triseriatus</i>       | La Crosse encephalitis                       | 192           | 1,887 |
| <i>Coquilleidia perturbans</i> | Eastern equine encephalitis, West Nile virus | 1,044         | 4,745 |
| <b>Tick species</b>            |  |               |       |
| <i>Amblyomma americanum</i>    | Ehrlichiosis, tularemia, red meat allergy    | 0             | 1,176 |
| <i>Dermacentor variabilis</i>  | Rocky Mountain spotted fever, tularemia      | 11            | 839   |
| <i>Ixodes scapularis</i>       | Lyme disease, Babesiosis, anaplasmosis       | 9             | 334   |

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 5/20/2023) | 1                          | -                               |
| Weeks 1 & 2: 5/21 to 6/3   | 1                          | 2                               |
| Weeks 3 & 4: 6/4 to 6/17   | 0                          | 2                               |
| Weeks 5 & 6: 6/18 to 7/1   | 0                          | 2                               |
| Weeks 7 & 8: 7/2 to 7/15   | 0                          | 2                               |
| Weeks 9 & 10: 7/16 to 7/29   | 1                          | 3                               |
| Weeks 11 & 12: 7/30 to 8/12  | 0                          | 3                               |
| Weeks 13 & 14: 8/13 to 8/26  | 0                          | 3                               |
| Weeks 15 & 16: 8/27 to 9/9   | 1                          | 4                               |
| Weeks 17 & 18: 9/10 to 9/23  | 0                          | 4                               |
| Weeks 19 & 20: 9/24 to 10/7  | 0                          | 4                               |
| Weeks 21 & 22: 10/8 to 10/21   | 2                          | 6                               |

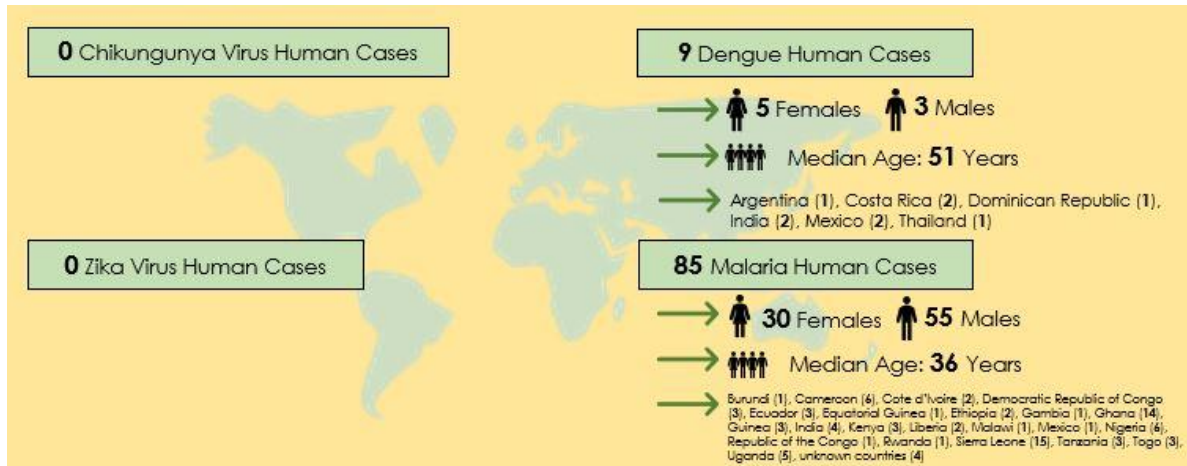
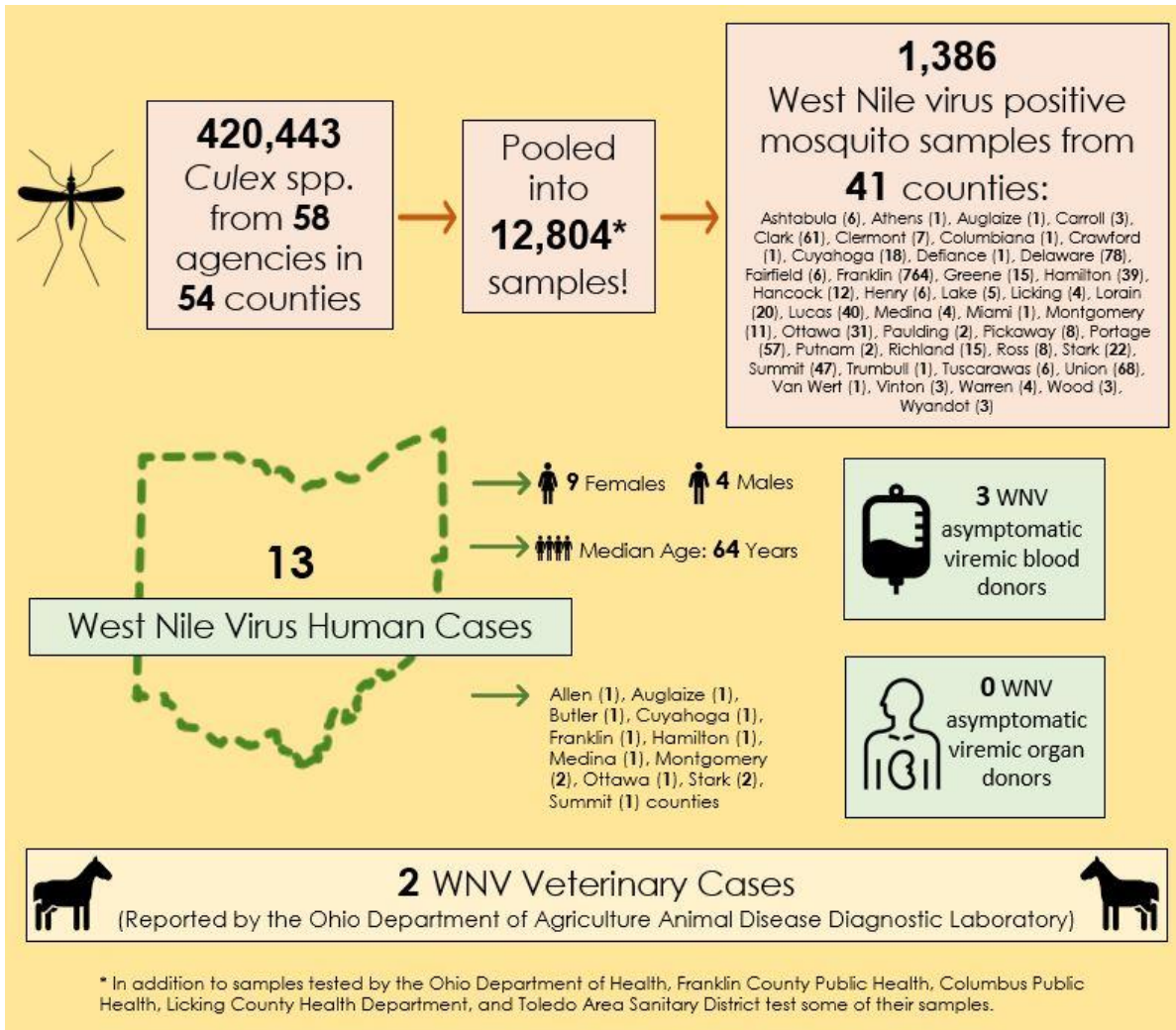
Source: Ohio Disease Reporting System (ODRS)

**Reported aseptic/viral meningitis cases (Table 5):** Prior to the reporting season, there was 1 reported case of aseptic meningitis, and 2 cases were reported during weeks 21 and 22. 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 October 19, 2023, 43,533 mosquitoes were collected as 1,255 pooled samples throughout Summit County. Of the pooled samples, 47 were positive for West Nile Virus.

|                             |        |
|-----------------------------|--------|
| Mosquitoes identified       | 43,533 |
| Pooled samples tested       | 1,255  |
| Positive WNV pooled samples | 47     |

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

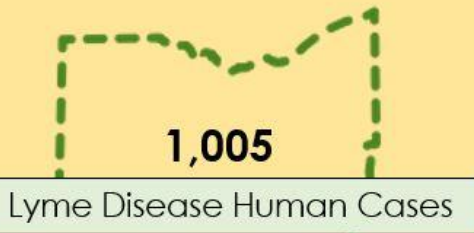






**334**  
Blacklegged  
Ticks, *Ixodes*  
*scapularis*,  
Identified

Identified from 50 counties: Ashland (1), Ashtabula (5), Athens (8), Belmont (1), Brown (6), Butler (1), Carroll (4), Clark (2), Clermont (1), Clinton (3), Columbiana (9), Coshocton (1), Cuyahoga (5), Delaware (2), Erie (3), Fairfield (5), Franklin (36), Gallia (2), Geauga (8), Greene (4), Guernsey (1), Hamilton (4), Harrison (3), Hocking (2), Huron (33), Jefferson (2), Knox (37), Licking (7), Lorain (4), Lucas (1), Mahoning (3), Marion (1), Medina (4), Mercer (1), Monroe (1), Morrow (2), Perry (1), Portage (8), Preble (1), Richland (6), Ross (3), Seneca (4), Stark (8), Summit (9), Trumbull (4), Tuscarawas (2), Vinton (54), Warren (13), Wood (3), Wyandot (4), unknown (1)



- **424** Females
- **581** Males
- Median Age: **40** Years

→ Allen (1), Ashland (9), Ashtabula (2), Athens (7), Auglaize (2), Belmont (18), Butler (2), Carroll (21), Clark (7), Clermont (13), Columbiana (100), Coshocton (40), Crawford (1), Cuyahoga (14), Defiance (1), Delaware (4), Erie (7), Fairfield (30), Franklin (28), Gallia (3), Geauga (5), Greene (2), Guernsey (35), Hamilton (17), Hancock (2), Harrison (17), Henry (1), Highland (2), Hocking (20), Holmes (38), Huron (2), Jackson (21), Jefferson (7), Knox (54), Lake (13), Licking (52), Logan (2), Lorain (1), Lucas (1), Madison (3), Mahoning (20), Marion (1), Medina (15), Meigs (1), Miami (1), Monroe (3), Montgomery (3), Morgan (6), Morrow (2), Muskingum (86), Noble (3), Perry (9), Pickaway (3), Portage (5), Richland (23), Ross (6), Scioto (3), Seneca (1), Stark (55), Summit (35), Trumbull (34), Tuscarawas (42), Union (1), Vinton (1), Washington (14), Wayne (26), Wood (1) counties

▶ **9** Anaplasmosis Human Cases

- **6** Females
- **3** Males
- Median Age: **74** Years

→ Athens (1), Columbiana (1), Coshocton (1), Cuyahoga (2), Franklin (1), Hamilton (1), Knox (1), Summit (1) counties

▶ **4** Babesiosis Human Cases

- **1** Female
- **3** Males
- Median Age: **70** Years

→ Franklin (2), Summit (1), Vinton (1) counties

**839**  
American Dog Ticks,  
*Dermacentor variabilis*,  
Identified



▶ **23** Rocky Mountain Spotted  
Fever Human Cases

- **6** Females
- **17** Males
- Median Age: **66** Years

→ Gallia (5), Jackson (13), Morrow (1), Pike (1), Scioto (1), Summit (1), Vinton (1) counties

**1,176**  
Lone Star Ticks,  
*Amblyomma americanum*,  
Identified



▶ **16** Ehrlichiosis Human Cases

- **7** Females
- **9** Males
- Median Age: **63** Years

→ Adams (1), Ashtabula (1), Athens (1), Franklin (1), Gallia (2), Holmes (1), Jackson (2), Ross (1), Scioto (2), Stark (1), Summit (1), Warren (1), Wayne (1) counties

**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.

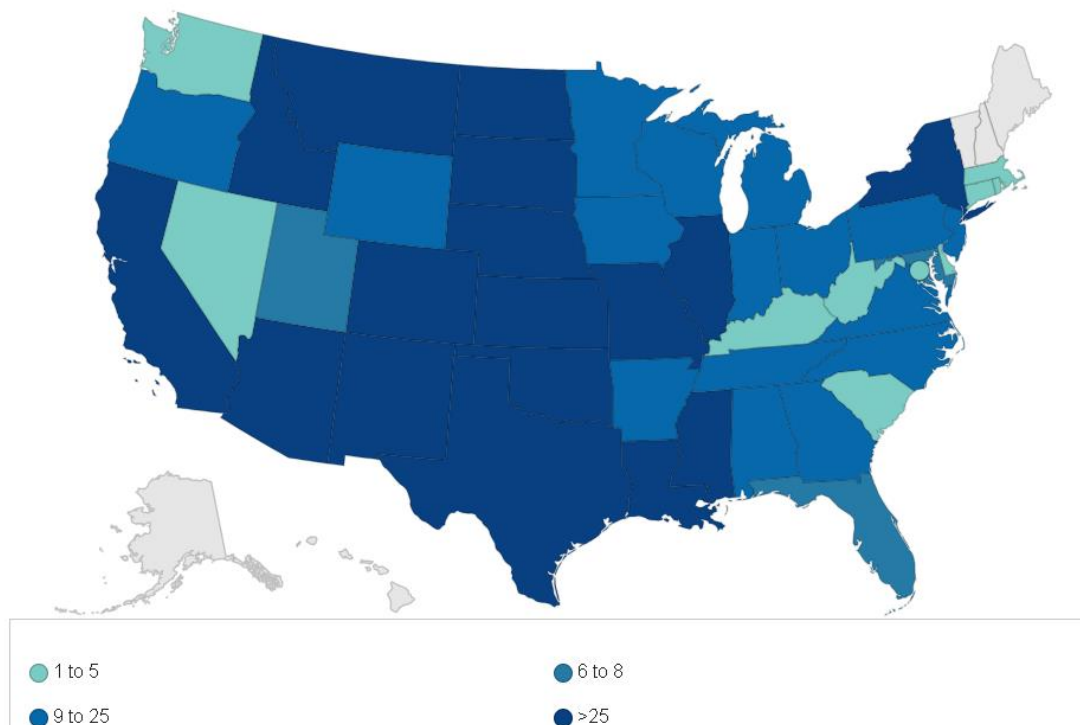
**UNITED STATES SURVEILLANCE**

**Table 7. Reported Vector Borne disease in the United States, 2023**

| Disease  | Weeks 21 and 22 (10/8 to 10/21) | 2023 (as of 10/21) Cumulative |
|--|---------------------------------|-------------------------------|
| Babesiosis   | 35                              | 2,771                         |
| Chikungunya  | 1                               | 75                            |
| Dengue (includes dengue-like illness)                  | 6                               | 914                           |
| Eastern equine encephalitis                            | 0                               | 7                             |
| Ehrlichiosis / anaplasmosis                            | 82                              | 6,439                         |
| Jamestown Canyon virus disease                         | 0                               | 12                            |
| LaCrosse virus disease                                 | 1                               | 20                            |
| Lyme Disease   | Not reported weekly by CDC      |                               |
| Malaria  | 32                              | 1,726                         |
| Powassan virus disease                                 | 1                               | 30                            |
| Spotted fever rickettsiosis                            | Not reported weekly by CDC      |                               |
| St. Louis encephalitis virus disease                   | 0                               | 8                             |
| West Nile virus infection                              | 12                              | 1,070                         |
| Zika virus infection, non-congenital                   | 0                               | 4                             |
| <b>Note:</b> 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 1. West Nile virus activity by state – United States, 2023 (as of October 24, 2023)**



Source: <https://www.cdc.gov/westnile/statsmaps/current-season-data.html>

## TRENDS IN VECTOR BORNE DISEASE IN SUMMIT COUNTY, 2013 - 2022

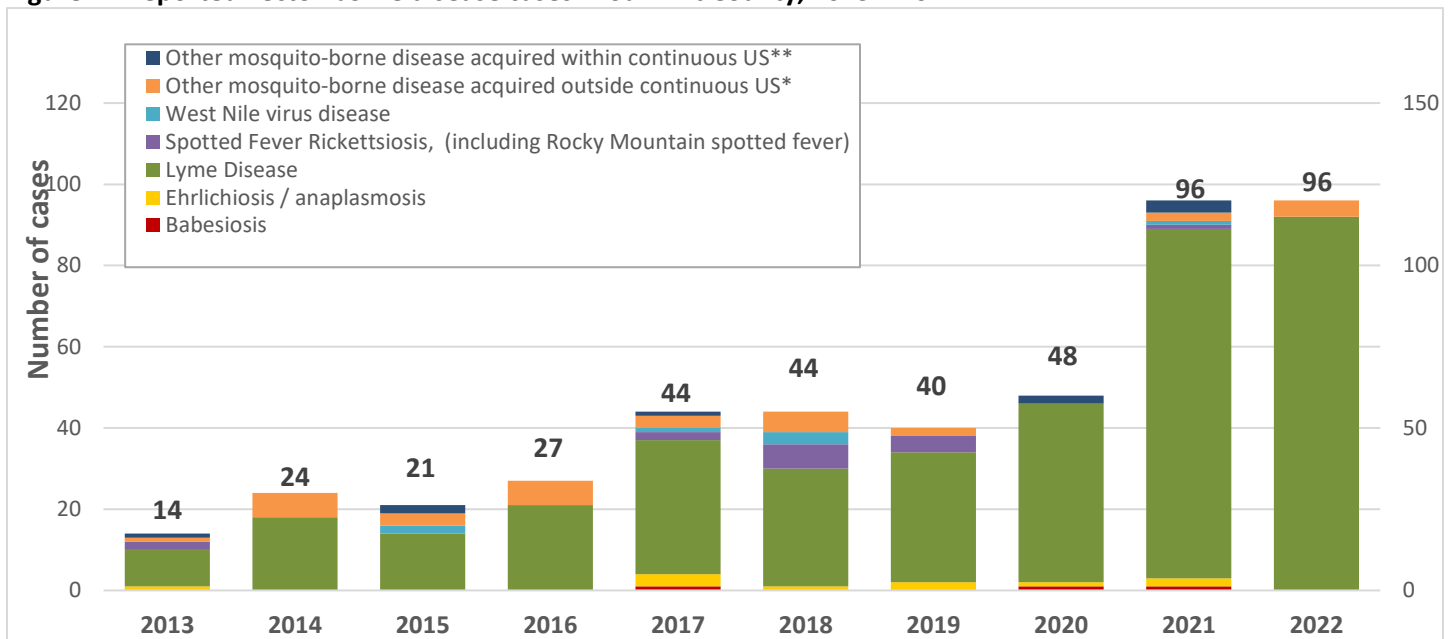
Table 8 provides data on the vector borne disease that were reported in Summit County from 2013 to 2022. The vector for Lyme disease, the blacklegged tick (*Ixodes scapularis*), was first identified in Ohio in 1989, but populations did not begin to increase dramatically until 2009. The blacklegged tick 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, 1/1/2013 - 12/31/2022**

|   | 2013      | 2014      | 2015      | 2016      | 2017      | 2018      | 2019      | 2020      | 2021      | 2022      |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Babesiosis  | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 1         | 1         | 0         |
| Ehrlichiosis / anaplasmosis   | 1         | 0         | 0         | 0         | 3         | 1         | 2         | 1         | 2         | 0         |
| Lyme Disease  | 9         | 18        | 14        | 21        | 33        | 29        | 32        | 44        | 86        | 92        |
| Spotted Fever Rickettsiosis, (including Rocky Mountain spotted fever) | 2         | 0         | 0         | 0         | 2         | 6         | 4         | 0         | 1         | 0         |
| West Nile virus disease   | 0         | 0         | 2         | 0         | 1         | 3         | 0         | 0         | 1         | 0         |
| Other mosquito-borne disease acquired outside continuous US*          | 1         | 6         | 3         | 6         | 3         | 5         | 2         | 0         | 2         | 4         |
| Other mosquito-borne disease acquired within continuous US**          | 1         | 0         | 2         | 0         | 1         | 0         | 0         | 2         | 3         | 0         |
|   | <b>14</b> | <b>24</b> | <b>21</b> | <b>27</b> | <b>44</b> | <b>44</b> | <b>40</b> | <b>48</b> | <b>96</b> | <b>96</b> |

**Figure 2. Reported vector-borne disease cases in Summit County, 2013 – 2022**



**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

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**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 Julie Zidones (JZidones@sched.org) or the Summit County Public Health Communicable Disease Unit (330-375-2662). This report was issued on **October 27, 2023**.