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Arbovirus Surveillance Report MMWR Week Sept 16th-Sept 22nd, 2018

Week 38 Summary

- 180 mosquito pools* have been tested in NTRL from week 38
 - Year-to-date NTRL has tested a total of 4025 mosquito pools
- 29 mosquito pool tested positive for WNV this week:
 - Arlington (5) Bedford (2) Benbrook (1) Colleyville (2) Crowley (1) Euless (2) Fort Worth (9) Grapevine (1) Hurst (1) North Richland Hills (1) Pantego (1)
- There have been 0 human cases of CHIK, Dengue, SLE, or Zika in 2018.
 - There have been 10 human cases of West Nile disease
- Average number of mosquitoes/trap include:
 - *Culex quinquefasciatus*: 113.9
 - *Aedes aegypti*: 19.2
 - *Aedes albopictus*: 0.9

NTRL= North Texas Regional Lab WNV= West Nile virus; CHIKV= Chikungunya virus; DENV= Dengue virus; SLEV St. Louis encephalitis virus
* May encompass counties outside of Tarrant County ** Non-NTRL results ***Mosquito species may change based on seasonality

Tarrant County Region WNV Positive Year to Date Summary

There have been a total of 182 positives in 2018.

Arlington (38) Bedford (8) Benbrook (1) Burleson *(1) Colleyville (22) Crowley (1) Euless (5) Everman (1) Fort Worth*(23) Grand Prairie (2) Grapevine (8) Haltom City (5) Haslet (1) Hurst (6) Keller (4) Kennedale (1) Lake Worth (1) Mansfield (2) North Richland Hills (25) Pantego (7) Richland Hills (6) Southlake (8) Unincorporated (4) Watauga (2)

* May encompass counties outside of Tarrant County

Table 1. MLE⁽¹⁾ and VI⁽²⁾ for County Quadrants, Week 37 and 38

| | County Quadrant | # gravid traps | Ave F <i>Culex</i> spp | Positive pools | MLE (Lower-Upper Limit) | VI |
|---------|-----------------|----------------|------------------------|----------------|-------------------------|-------|
| Week 37 | Northeast | 86 | 45.0 | 19.0 | 8.31 (5.16-12.83) | 0.373 |
| | Northwest | 39 | 79.2 | 3.0 | 2.49 (0.66-6.77) | 0.197 |
| | Southeast | 35 | 55.7 | 3.0 | 2.75 (0.74-7.43) | 0.153 |
| | Southwest | 28 | 53.4 | 0.0 | 0.00 (0.00-3.56) | 0.000 |
| Week 38 | Northeast | 69 | 79.9 | 19.0 | 10.21 (6.37-15.76) | 0.816 |
| | Northwest | 37 | 184.9 | 1.0 | 0.74 (0.04-3.61) | 0.137 |
| | Southeast | 40 | 104.6 | 5.0 | 3.60 (1.35-8.03) | 0.377 |
| | Southwest | 28 | 140.4 | 4.0 | 3.57 (1.17-8.67) | 0.501 |

Data source: Tarrant County Public Health

1. MLE= Maximum Likelihood Estimate or the estimate of the mosquito infection rate per mosquito species. 2. VI= Vector Index which is a measure of infectivity accounting for vector species composition, vector species population density, and proportion of vector population infected with WNV

Averages, MLE, and limits will be given for species with identified infection rates only and only for the latest two week. MLE, Lower and Upper Limits are based on a 95% confidence interval. All data in this table is based on collection date.

Calculated using a Maximum Likelihood Estimation (MLE). Biggerstaff, Brad J. PooledInRate, Version 4.0: a Microsoft® Office Excel® Add-In to compute prevalence estimates from pooled samples. Centers for Disease Control and Prevention, Fort Collins, CO, U.S.A., 2009



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Cumulative Data for the Tarrant County Region, Weeks 35-38

| Week | Aug 27- Sept 2 | Sept 3- Sept 9 | Sept 10- Sept 16 | Sept 17- Sept 23 | YTD |
|---|-------------------|-------------------|---------------------|---------------------|-------|
| MMWR Week | 35 | 36 | 37 | 38 | |
| Total number of gravid traps set in Tarrant Region | 198 | 171 | 203 | 189 | 4342 |
| Average number of <i>Culex quinquefasciatus</i> per gravid trap | 80.2 | 83.9 | 53.6 | 113.8 | 41.0 |
| Number of mosquito pools tested ¹ | 191 | 159 | 196 | 180 | 4025 |
| Number of positive mosquito pools (NTRL; non-NTRL) ¹ | 16;0 | 17;0 | 25;0 | 29;0 | 180;2 |
| Confirmed WNV human cases (WNF; WNND) ² | 1;1 | 0;0 | 1;3 | 0;0 | 6;4 |
| WNV infection rate per 1,000 <i>Culex quinquefasciatus</i> ³ | 2.39 | 3.34 | 4.51 | 5.12 | |
| Weekly vector index ⁴ | 0.192 | 0.281 | 0.242 | 0.583 | |
| Total BG Sentinel traps set in Tarrant Region | 42 | 33 | 43 | 44 | 938 |
| Average number of female <i>Aedes aegypti</i> per BG trap | 10.3 | 6.7 | 17.2 | 19.2 | 3.0 |
| Average number of female <i>Aedes albopictus</i> per BG trap | 1.4 | 1.1 | 0.5 | 0.9 | 1.4 |

¹ Based on mosquito collection date NTRL = North Texas Regional Laboratory, non-NTRL includes Tarrant County only

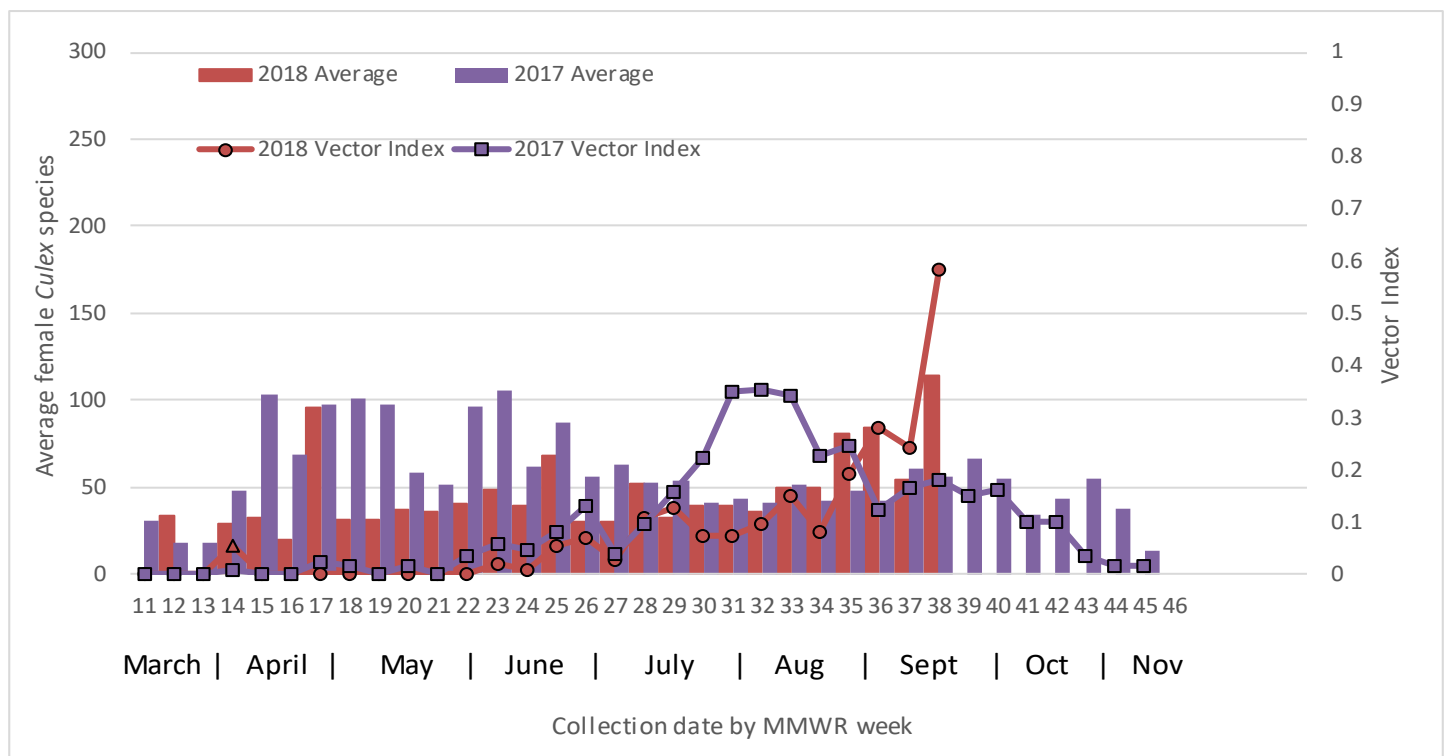
² Based on onset of illness date for cases reported to Tarrant County Public Health; WNF=West Nile Fever; WNND = West Nile Neuroinvasive Disease

³ Calculated using a Maximum Likelihood Estimation (MLE). Biggerstaff, Brad J. PooledInfRate, Version 4.0: a Microsoft® Office Excel® Add-In to compute prevalence estimates from pooled samples. Centers for Disease Control and Prevention, Fort Collins, CO, U.S.A., 2009

⁴ Vector Index is a measure of infectivity accounting for vector species composition, vector species population density, and proportion of vector population infected with WNV

Note: Infection rate and vector index calculations may not include positive pools from Non-NTRL laboratories; Data subject to change due to on-going case investigations, mosquito collection, and testing

Figure 1. Average Number of Female Culex Species Per Trap and Vector Index by

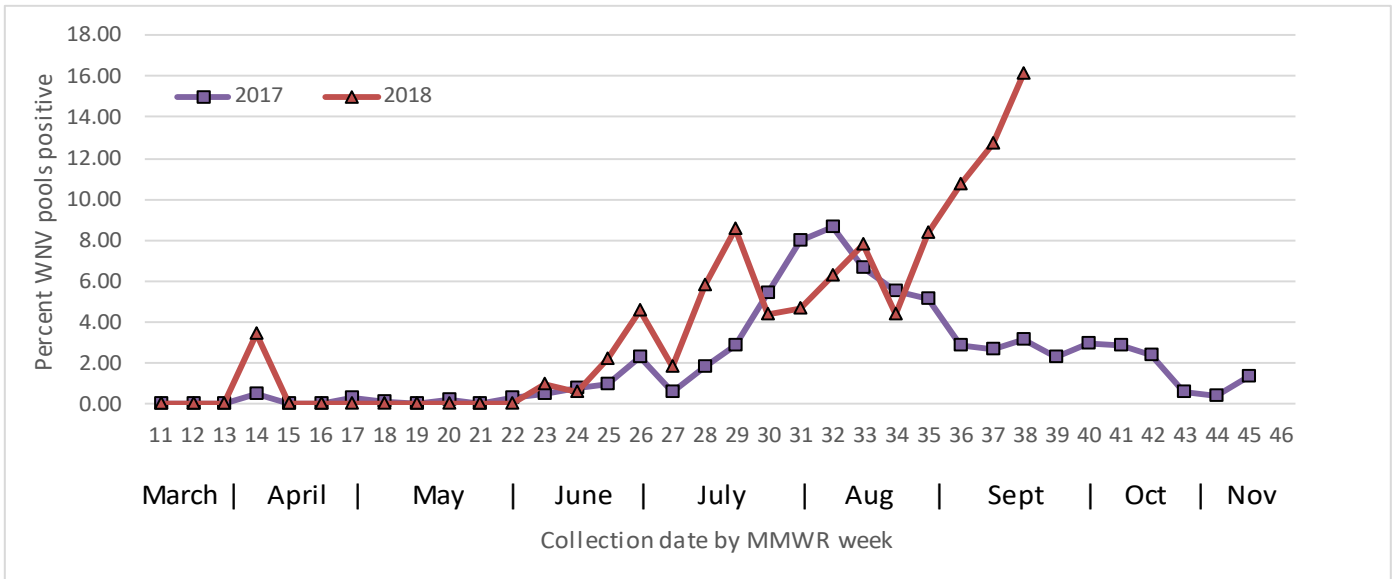


Data Source: Tarrant County Public Health



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Figure 2. Percentage of Mosquito Pools Positive for WNV by Collection Date, Tarrant County, 2017-2018



Data Source: Tarrant County Public Health

Table 3. North Texas Arbovirus Season Activity as Reported by Texas DSHS on September 25h, 2018

| North Texas Counties | WNV | | | | CHIKV | | DENV | | SLEV | | Zika | |
|---------------------------|-------------------------|-------------|-----------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|----------|
| | Positive Mosquito Pools | Human cases | | Positive Mosquito Pools | Human Cases | Positive Mosquito Pools | Human Cases | Positive Mosquito Pools | Human Cases | Positive Mosquito Pools | Human Cases | |
| Collin | 12 | 1 WNF; | 1 WNND | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Dallas | 176 | 1 WNF; | 8 WNND | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Denton | 6 | 0 WNF; | 1 WNND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Johnson | 1 | 0 WNF; | 0 WNND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Non-Tarrant North Texas | 195 | 2 | 10 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| All Texas Counties | 825 | 15 | 42 | 0 | 7 | 0 | 6 | 1 | 0 | 0 | 0 | 3 |

*All reported CHIKV, DENV, & Zika human cases are travel-related
WNV- West Nile virus; WNF- West Nile fever; WNND- West Nile neuroinvasive disease; CHIKV- Chikungunya virus;
DENV- Dengue virus; SLEV- St. Louis encephalitis virus

For Additional Information Please Visit The Links Below:

Department of State Health Services:

- [Arbovirus Activity Reports](#)
- [Texas Zika](#)

Tarrant County educational videos and documents:

- [Eliminating Mosquito Breeding Sites](#)
- [Barrier Treatments for Mosquitoes](#)
- [Mosquitoes Love Water](#)
- [Mosquito Prevention Tool Kit](#)

Tarrant County web pages:

- [Be Mosquito Free](#)
- [Zika](#)
- [Vector Control](#)

Environmental Protection Agency:

- [Insect Repellent Information](#)

Center for Disease Control and Prevention:

- [Zika Travel Information](#)