Tarrant County Public Health

Weekly Arbovirus Surveillance Report: MMWR Week Jul 30-Aug 5, 2023

Week 31 Summary

- 177   mosquito pools* have been tested in NTRL from week   31
  - Year-to-date NTRL has tested a total of   2857   mosquito pools
- 20   mosquito pools tested positive for WNV this week:

  Arlington (7) Bedford (2) Euless (2) Fort Worth* (3) Grapevine (2) Hurst (1) Keller (1) Mansfield (1) Southlake (1)

- There have been 0 imported human cases of SLE or Zika in 2023. There has been 1 case of Dengue Fever.
  - There have been   3   human cases of West Nile disease.
- Average number of mosquitoes/trap include:
  - *Culex* spp*:*   21.6
  - *Aedes aegypti:*   1.0
  - *Aedes albopictus:*   2.7

NTRL– North Texas Regional Lab
*WNV= West Nile virus; CHIKV= chikungunya virus; DENV= dengue virus; SLEV St. Louis encephalitis virus   * May include data from outside Tarrant County*

Cumulative Positive WNV Pools per Municipality

There have been a total of   172   positives in 2023

Arlington (44) Bedford (6) Burleson *(6) Colleyville (9) Euless (14) Fort Worth* (36) Grapevine (12) Haltom City (3) Hurst (6) Keller (3) Mansfield* (2) North Richland Hills (5) River Oaks (4) Southlake (5) Unincorporated** (15) Watauga (2)

* May include data from outside Tarrant County ** Includes 2 positives from winter surveillance

Table 1. MLE[1] and VI[2] for County Quadrants, Weeks 30 and 31

	County Quadrant	# Gravid traps	Ave F *Culex* spp	Positive pools	MLE (Lower-Upper Limit)	VI
Week 30	Northeast	66	29.7	10.0	8.43 (4.32-15.17)	0.233
	Northwest	28	27.1	1.0	1.46 (0.09-7.06)	0.044
	Southeast	37	33.8	3.0	3.29 (0.88-8.93)	0.111
	Southwest	27	27.6	2.0	3.42 (0.63-11.13)	0.093
Week 31	Northeast	81	20.0	13.0	10.96 (6.14-18.39)	0.219
	Northwest	29	21.4	0.0	0.00 (0.00-8.19)	0.000
	Southeast	43	67.7	7.0	10.80 (4.73-21.96)	0.483
	Southwest	25	20.0	0.0	0.00 (0.00-7.29)	0.000

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. PooledInfRate, Version 4.0: a Microsoft® Office Excel© Add-In to compute prevalence estimates

Cumulative Data for the Tarrant County Region, Weeks 28-31

Week	Jul 9-Jul 15	Jul 16-Jul 22	Jul 23-Jul 29	Jul 30-Aug 5	YTD
MMWR Week	28	29	30	31	
Total number of gravid traps set in Tarrant Region	163	176	158	178	2674
Average number of *Culex* spp per gravid trap	42.1	26.2	37.0	21.6	147.8
Number of mosquito pools tested[1] (NTRL; non-NTRL)	169;13	173;16	166;13	177;6	2857;230
Number of positive mosquito pools (NTRL; non-NTRL)[1]	29;0	23;0	17;0	20;0	172;0
Confirmed WNV human cases (WNF; WNND)[2]	0;0	0;2	0;0	0;0	0;3
WNV infection rate per 1,000 *Culex spp*[3]	8.51	7.33	4.82	7.39	
Weekly vector index[4]	0.317	0.310	0.143	0.249	
Total BG Sentinel traps set in Tarrant Region	26	22	28	20	400
Average number of female *Aedes aegytpi* per BG trap	5.8	4.4	3.9	1.0	3.1
Average number of female *Aedes albopictus* per BG trap	4.7	4.9	2.8	2.7	3.4

1 Based on mosquito collection date; NTRL = North Texas Regional Laboratory
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 Culex spp includes pools of both Cx restuans and Cx quinquefasciatus. These MLEs are calculated separately, per species and added together as per instructions by CDC.
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 now includes pools from outside laboratories; Data subject to change due to on-going case investigations, mosquito collection, and testing. Data source: Tarrant County Public Health

Figure 1. Average Number of Female *Culex* Species Per Trap and Vector Index by Collection Date, Tarrant County, 2022-2023
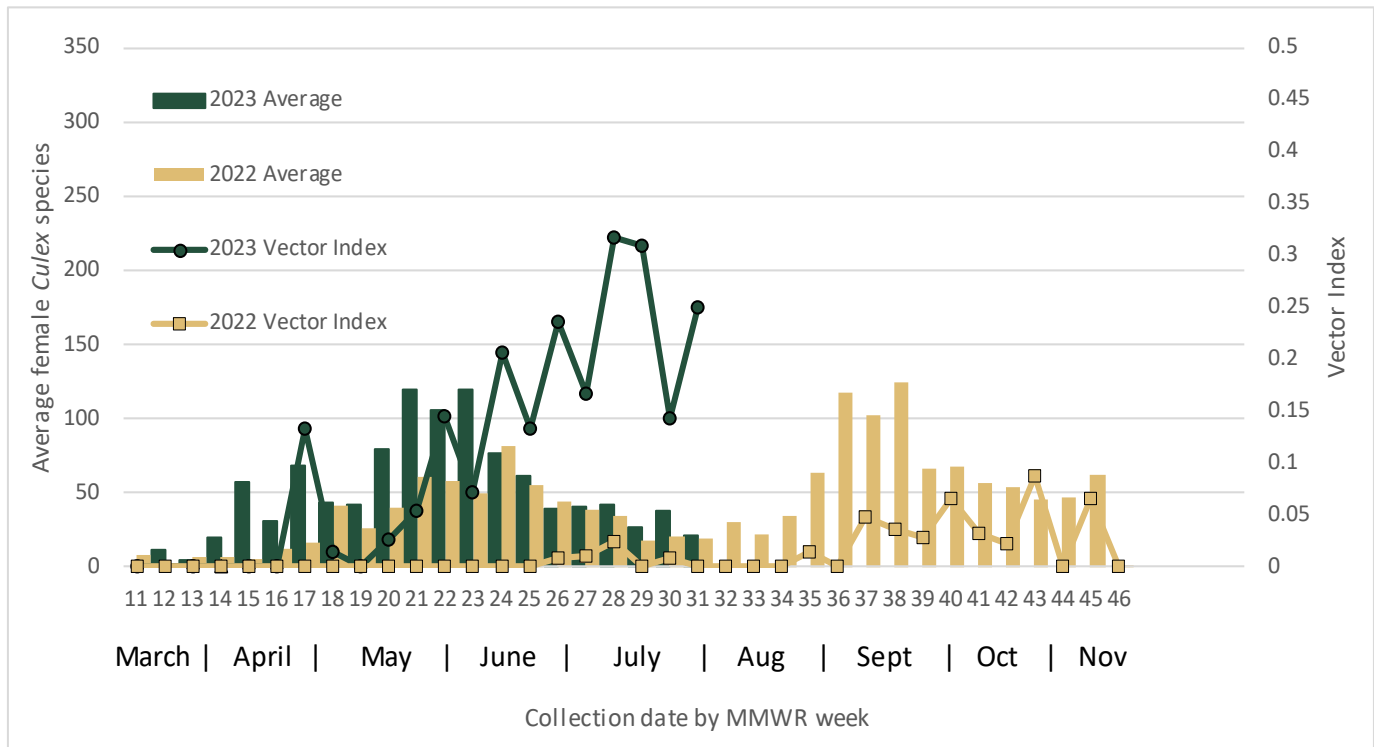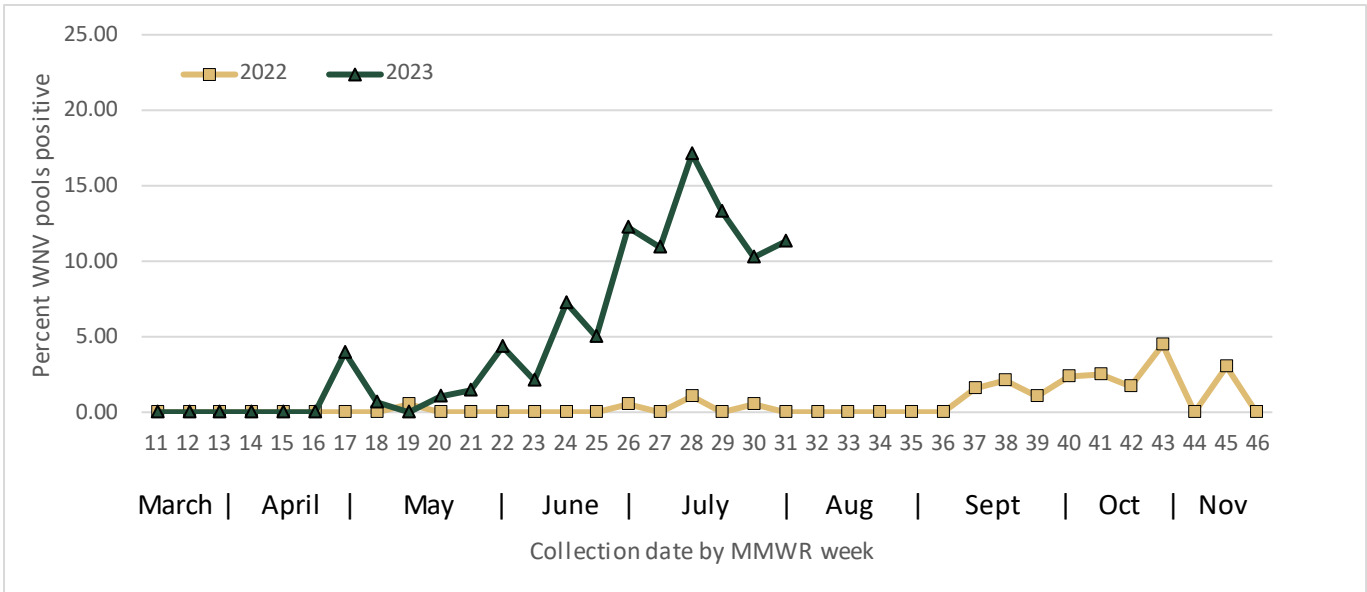

Data Source: Tarrant County Public Health

Figure 2. Percentage of Mosquito Pools Positive for WNV by Collection Date, Tarrant County, 2022-2023

Data Source: Tarrant County Public Health

Table 3. North Texas Arbovirus Activity as Reported by Texas DSHS on August 8, 2023

North Texas Counties	WNV Positive Mosquito Pools	WNV Human cases				CHIKV Positive Mosquito Pools	CHIKV Human Cases	DENV Positive Mosquito Pools	DENV Human Cases	SLEV Positive Mosquito Pools	SLEV Human Cases	Zika Positive Mosquito Pools	Zika Human Cases
Collin	7	1	WNF;	0	WNND	0	0	0	0	0	0	0	0
Dallas	164	1	WNF;	4	WNND	0	0	0	1	0	0	0	0
Denton	11	0	WNF;	1	WNND	0	0	0	0	0	0	0	0
Johnson	6	0	WNF;	0	WNND	0	0	0	0	0	0	0	0
Non-Tarrant North Texas	188	2		5		0	0	0	1	0	0	0	0
All Texas Counties	514	1	0	7	0	0	0	0	1	2	0	0	0

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
- WNV Interactive Mapping Tool

Environmental Protection Agency:
- Insect Repellent Information

Center for Disease Control and Prevention:
- Zika Travel Information