Tarrant County Public Health

Weekly Arbovirus Surveillance Report: MMWR Week Oct 22-Oct 28, 2023

Week 43 Summary

- 146 mosquito pools* have been tested in NTRL from week 43
  - Year-to-date NTRL has tested a total of 4805 mosquito pools
- 5 mosquito pools tested positive for WNV this week:
  Arlington (2) Burleson* (1) Colleyville (1) Mansfield (1)
- There have been 0 imported human cases of SLE or Zika in 2023. There has been 5 cases of Dengue Fever.
  - There have been 11 human cases of West Nile disease.
- Average number of mosquitoes/trap include:
  - *Culex* spp: 77.1
  - *Aedes aegypti:* 18.0
  - *Aedes albopictus:* 2.1

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 243 positives in 2023

Arlington (58) Bedford (7) Benbrook (1) Burleson *(11) Colleyville (10) Crowley (1) Euless (16) Fort Worth* (52) Grapevine (16) Haltom City (4) Hurst (9) Keller (7) Mansfield* (8) North Richland Hills (5) Pantego (1) River Oaks (4) Southlake (10) Unincorporated (21) 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 42 and 43

	County Quadrant	# Gravid traps	Ave F *Culex* spp	Positive pools	MLE (Lower-Upper Limit)	VI
Week 42	Northeast	72	48.3	4.0	2.06 (0.67-5.72)	0.101
	Northwest	23	79.3	2.0	2.39 (0.43-9.69)	0.201
	Southeast	39	76.3	1.0	0.77 (0.04-4.86)	0.059
	Southwest	27	64.3	2.0	2.41 (0.15-14.50)	0.130
Week 43	Northeast	52	60.8	2.0	1.32 (0.24-4.33)	0.080
	Northwest	25	33.4	0.0	0.00 (0.00-5.98)	0.000
	Southeast	40	123.6	2.0	1.60 (0.29-7.05)	0.207
	Southwest	21	77.2	0.0	0.00 (0.00-4.35)	0.000

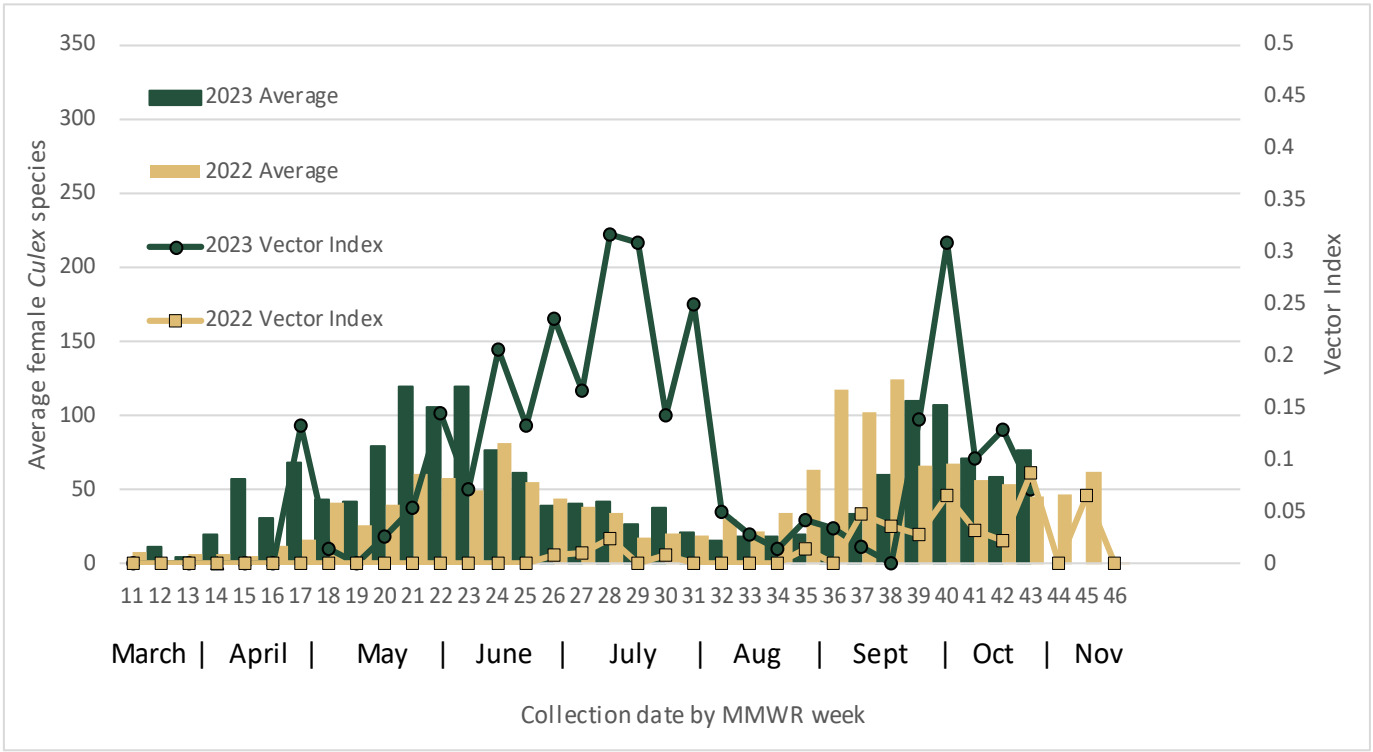
Data source: Tarrant County Public Health
1. MLE= Maximum Likelihood Estimate or the estimate of the mosquito infection rate per mosquito species. 2. VI= Vector Index which is a measure of infectivity accounting for vector species composition, vector species population density, and proportion of vector 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 40-43

Week	Oct 1-Oct 7	Oct 8-Oct 14	Oct 15-Oct 21	Oct 22-Oct 28	YTD
MMWR Week	40	41	42	43	
Total number of gravid traps set in Tarrant Region	159	165	161	138	4554
Average number of *Culex* spp per gravid trap	106.5	71.5	59.1	77.1	148.3
Number of mosquito pools tested[1] (NTRL; non-NTRL)	168;16	170;13	172;5	146;8	4805;662
Number of positive mosquito pools (NTRL; non-NTRL)[1]	16;0	9;0	9;0	5;0	243;0
Confirmed WNV human cases (WNF; WNND)[2]	0;0	0;0	0;0	0;0	1;11
WNV infection rate per 1,000 *Culex spp*[3]	2.55	1.23	1.84	0.97	
Weekly vector index[4]	0.310	0.101	0.129	0.073	
Total BG Sentinel traps set in Tarrant Region	20	22	25	17	662
Average number of female *Aedes aegytpi* per BG trap	8.3	14.3	9.8	18.0	4.4
Average number of female *Aedes albopictus* per BG trap	1.8	3.5	4.4	2.1	2.8

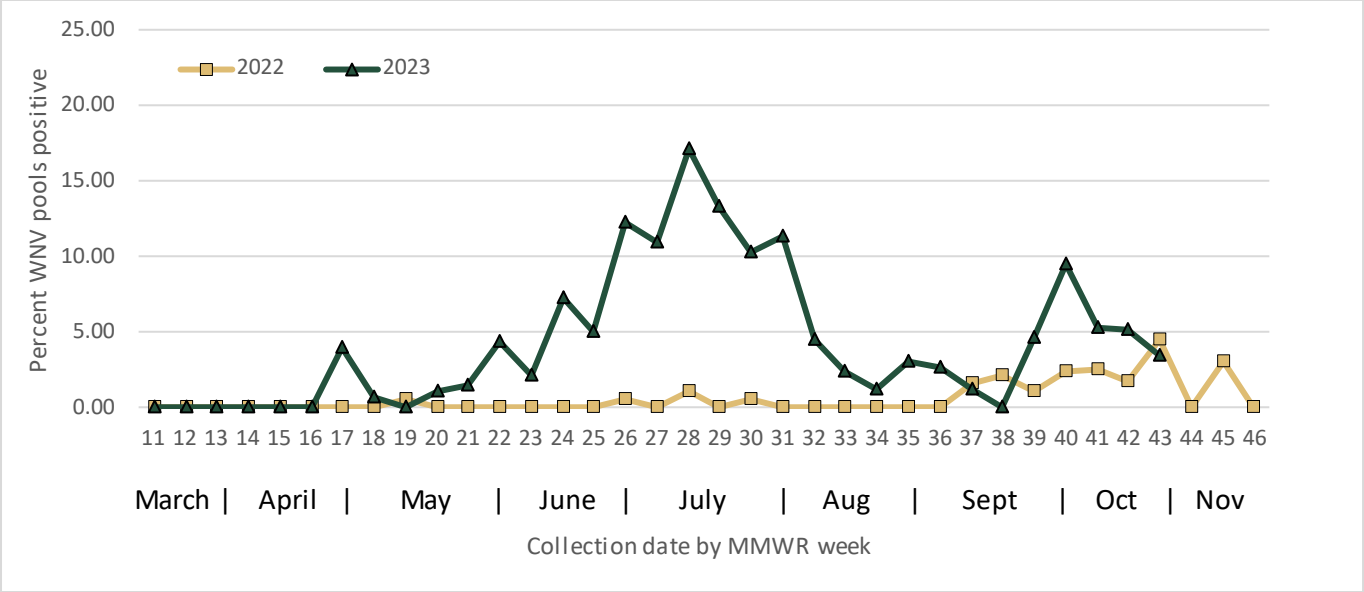
1 Based on mosquito collection date; NTRL = North Texas Regional Laboratory
2 Based on onset of illness date for cases reported to Tarrant County Public Health; WNF=West Nile Fever; WNND = West Nile Neuroinvasive Disease
3 Calculated using a Maximum Likelihood Estimation (MLE). Biggerstaff, Brad J. PooledInfRate, 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 October 31, 2023

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	15	1	WNF;	0	WNND	0	0	0	4	0	0	0	0
Dallas	213	5	WNF;	14	WNND	0	0	0	5	0	0	0	0
Denton	17	0	WNF;	2	WNND	0	0	0	2	0	0	0	0
Johnson	10	0	WNF;	0	WNND	0	0	0	0	0	0	0	0
Non-Tarrant North Texas	255	6		16		0	0	0	11	0	0	0	0
All Texas Counties	892	17		54		0	0	0	27	13	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