

Dallas County Health and Human Services Arbovirus Surveillance Report



Summary of 2021 WNV Season

- During 2021, a total of 7,217 gravid mosquito traps were placed in Dallas County, with 363 traps testing positive for WNV. The peak county-wide vector index was 0.27 in week 30.
- Twenty-eight human WNV cases, including three deaths were confirmed in Dallas County during the 2021 season.
- In 2021, No chikungunya or Zika cases have been reported in Dallas County.
- Two imported dengue case was reported in Dallas County in 2021.

Table 1. Mosquito Laboratory and Human Case Surveillance Data for WNV, Dallas County

Week Ending	11/20	11/27	12/4	12/11	12/18	12/25	1/1	YTD
MMWR Week	46	47	48	49	50	51	52	
Total Traps Placed in Dallas County ^a	71	47	35	58	45	0	26	7,217
Number of Positive Mosquito Traps (PHL; IL) ^c	0;0	0;0	0;0	0;0	0;0	0;0	0;0	323;40
Number of Pools Tested (PHL; IL) ^{b,c}	71;0	42;0	32;0	53;0	39;0	0;0	0;0	5,543;453
Number of Trap Results Currently Pending	0	0	0	0	0	0	0	
Average Number of <i>Cx. quinquefasciatus</i> per Trap ^d	52	18	15	50	46	0	21	30.3
Total Number of <i>Cx. quinquefasciatus</i> Trapped and Tested	2,214	713	487	1,560	1,222	0	522	132,321
Number of Positive Mosquito Pools (PHL; IL) ^c	0;0	0;0	0;0	0;0	0;0	0;0	0;0	329;40
WNV Infection Rate per 1,000 <i>Cx. quinquefasciatus</i> ^e	0	0	0	0	0	0	0	
Weekly Vector Index (VI) ^f	0	0	0	0	0	0	0	
Presumptive WNV Viremic Blood Donors	0	0	0	0	0	0	0	2
WNV Human Cases (WNND; WNF) ^g	1; 0	1; 0	0; 0	2; 0	0; 0	0; 0	0; 0	25;3

Table 2. Mosquito Laboratory and Human Case Surveillance Data for chikungunya, dengue and Zika virus, Dallas County

Week Ending	11/20	11/27	12/4	12/11	12/18	12/25	1/1	YTD
MMWR Week	46	47	48	49	50	51	52	
Total Biogents Sentinel-Traps Placed in Dallas County ^h	0	0	0	0	0	0	0	168
Average Number of <i>Aedes</i> per Trap ⁱ	0	0	0	0	0	0	0	1.5
Chikungunya Human Cases (Confirmed & Probable) ^j	0	0	0	0	0	0	0	0
Dengue Human Cases (Confirmed & Probable) ^k	0	0	0	0	0	0	0	2
Zika Human Cases (Confirmed & Probable) ^l	0	0	0	0	0	0	0	0
Pregnant Women with Possible Zika Infection ^m	0	0	0	0	0	0	0	0

- a. All traps deployed in municipalities submitting data to DCHHS since January 1, 2020. Includes traps without mosquitoes, malfunctioning traps and traps with pending results
- b. Excludes traps without female *Culex quinquefasciatus* identified. Maximum of 50 female *Culex quinquefasciatus* per pool; more than 1 pool may be tested per trap
- c. PHL = Public health laboratory (DSHS, DCHHS) testing performed by viral culture or CDC RT-PCR protocol; IL = Testing from independent labs by alternate methods
- d. Average abundance of female *Culex quinquefasciatus* mosquitoes per trap night/week (excludes non-working traps)
- e. WNV infection rates calculated using a Maximum Likelihood Estimation (MLE). *Biggerstaff BJ. PooledInfRate, version 4.0; Microsoft Excel Add-In; CDC 2007*
- f. The Vector Index (VI) reflects the MLE adjusted for *Culex quinquefasciatus* abundance. $VI = \sum_{i=species} \bar{N}_i \bar{P}_i$, where \bar{N} is the average number of *Culex quinquefasciatus* mosquitoes collected per trap night and \bar{P} is the estimated infection rate
- g. Human cases by week of report to health department. WNND = West Nile Neuroinvasive Disease; WNF = West Nile Fever
- h. All Biogents (BG) Sentinel traps deployed in municipalities submitting data to DCHHS since Week 15.
- i. Average abundance of *Aedes albopictus* and *Aedes aegypti* mosquitoes per night/trap in BG-Traps (excludes non-working traps)
- j. Human CHKV cases by week of report to health department (AT : Autochthonous case; I : imported)
- k. Human Dengue cases by week of report to the health department
- l. Confirmed and probable human Zika cases by week of specimen collection date
- m. Possible Zika Virus Infection Among Pregnant Women — United States and Territories, May 2016. <http://www.cdc.gov/mmwr/volumes/65/wr/mm6520e1.htm/>

Table 3. WNV Positive Gravid Mosquito Traps and Human WNV Cases by City, Dallas County, 2021

City	Number of Human WNV Cases	Range Total Number of Traps/Week ¹	Number of WNV Positive Traps
Addison	1	1–2	8
Balch Springs	0	1–6	3
Carrollton	0	7–8	12
Cedar Hill	0	2–10	2
Cockrell Hill	0	1–2	1
Coppell	0	5–6	31
Dallas	17	1–75	116
DeSoto	0	6–12	14
Duncanville	0	5–10	8
Farmers Branch	2	5–5	13
Garland	0	3–54	12
Glenn Heights	0	2–4	40
Grand Prairie	0	24–31	7
Highland Park	0	3–3	8
Hutchins	0	2–4	0
Irving	5	1–3	28
Lancaster	0	13–38	1
Mesquite	1	4–10	31
Richardson	2	12–25	22
Rowlett	0	12–12	3
Sachse	0	7–14	3
Seagoville	0	3–6	0
Sunnyvale	0	2–4	0
Unincorporated County	0	2–4	0
University Park	0	1–8	8
Wilmer	0	3–4	0
Total	28		363

¹Range of numbers of traps placed weekly, in weeks 1 – 52.

Figure 1: All WNV Negative and Positive Mosquito Traps Collected During 2020: Weeks 1-52 (N=7,217)

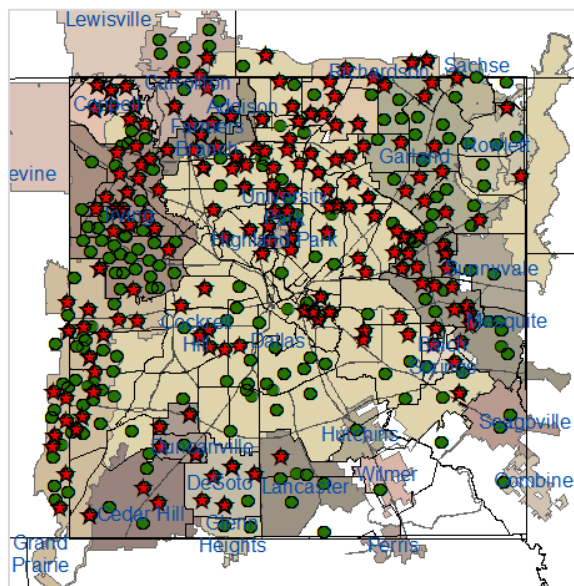
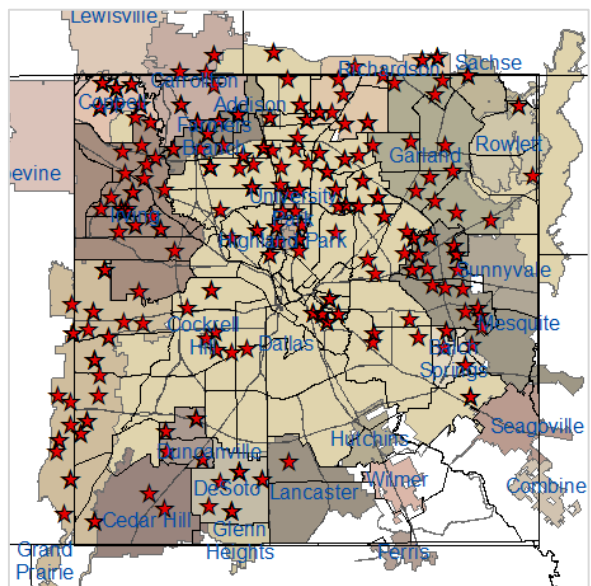


Figure 2: Cumulative WNV Positive Mosquito Traps Collected: Weeks 1-52 (N=363)



Positive Traps



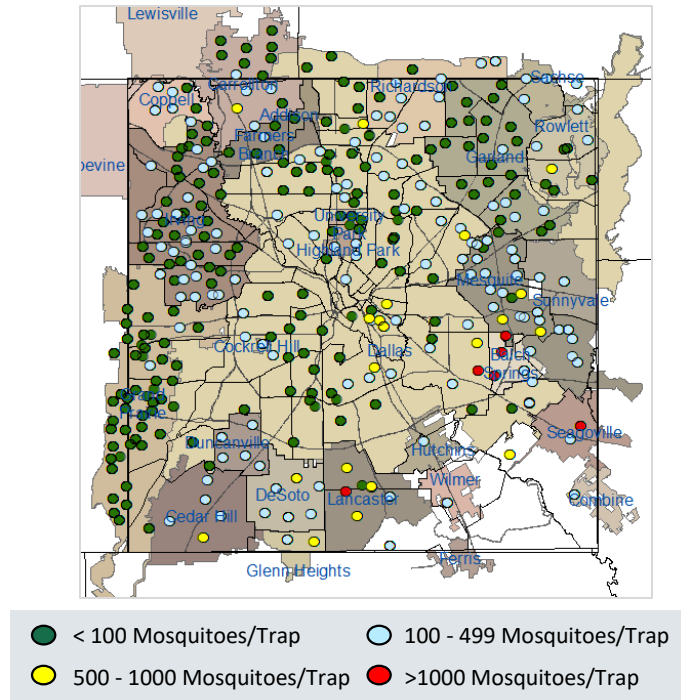
Negative Traps

PHONE

EMAIL

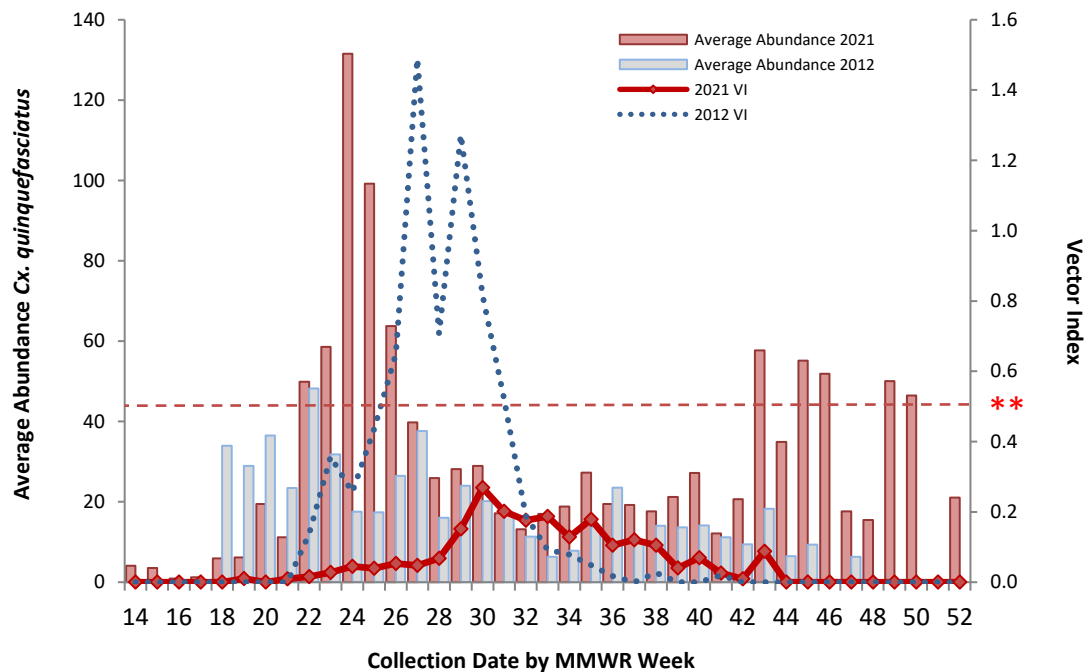
WEB

Figure 3: Trap Counts of Female *Cx. quinquefasciatus* from 2021 Season: Weeks 1-52



*Figure 3 only shows traps for which results were available; malfunctioning traps were excluded. Almost all traps are at fixed sites.

Figure 4: Average Numbers of Female *Cx. quinquefasciatus* per Trap-night and WNV Vector Index by Week: 2012 Season and 2021 Season



** Vector Index of 0.50 is the historical threshold associated with larger local epidemics of WNV illnesses in humans.

PHONE

EMAIL

WEB

Figure 5: WNV Vector Index by Week: 2012 - 2021 Seasons

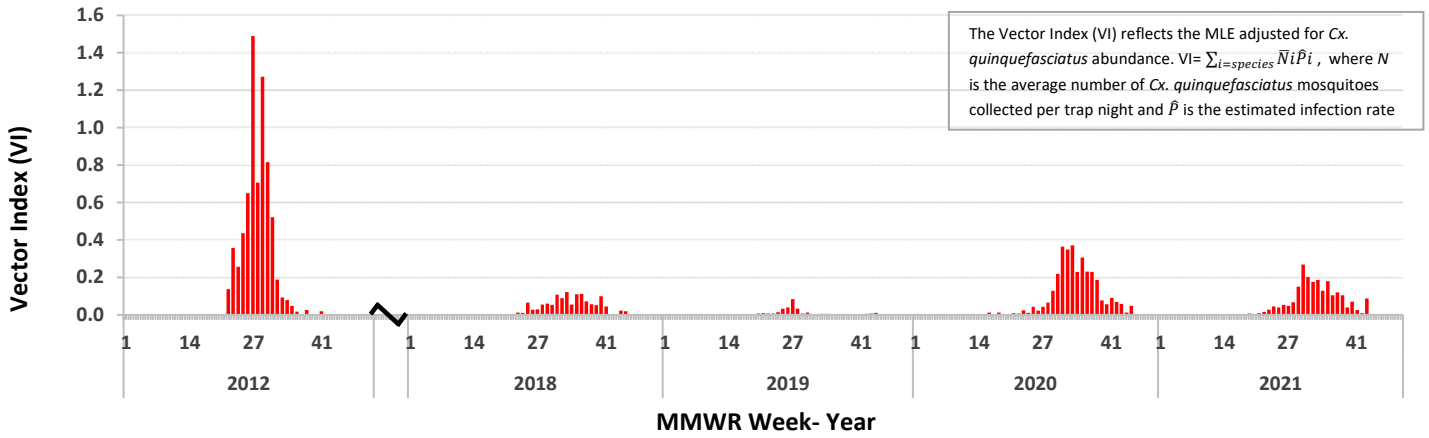


Figure 6: Average Numbers of Female *Cx. quinquefasciatus* per Trap-night by Week: 2012 - 2021 Seasons

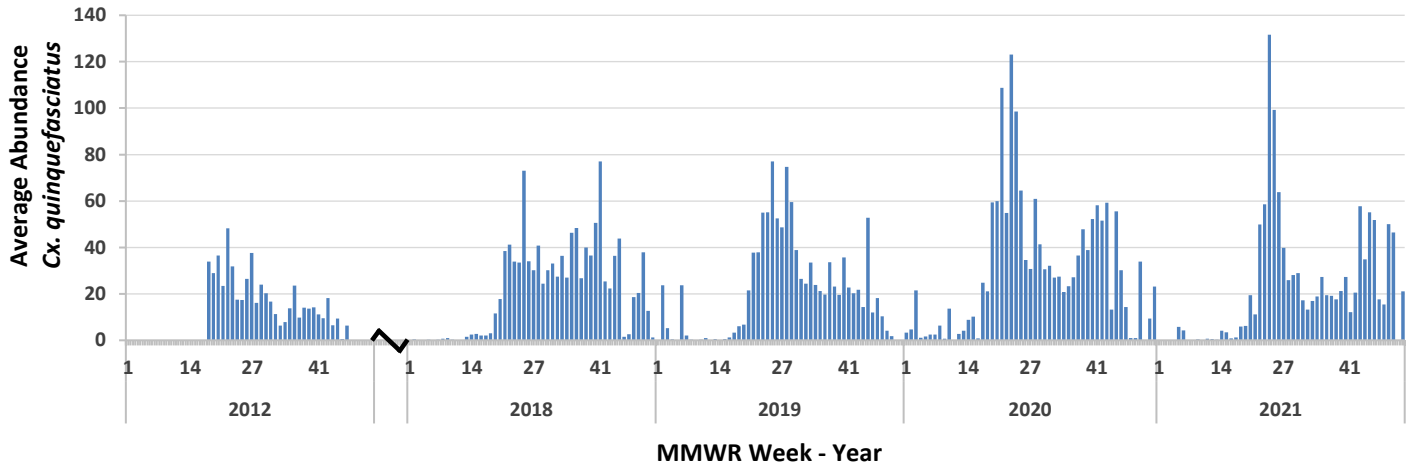
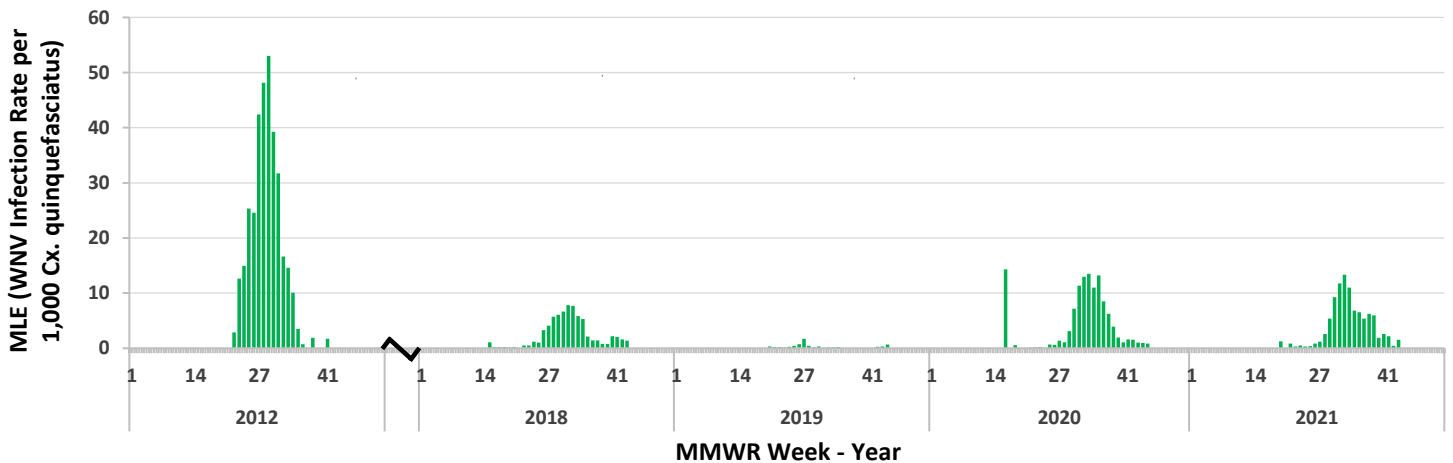


Figure 7: MLE (WNV Infection Rate per 1,000 *Cx. quinquefasciatus*) by Week: 2012 - 2021 Seasons



PHONE

EMAIL

WEB

Figure 8: WNV Vector Index, Viremic Blood Donors, and Human WNV Cases by Week of Report: 2021 Season

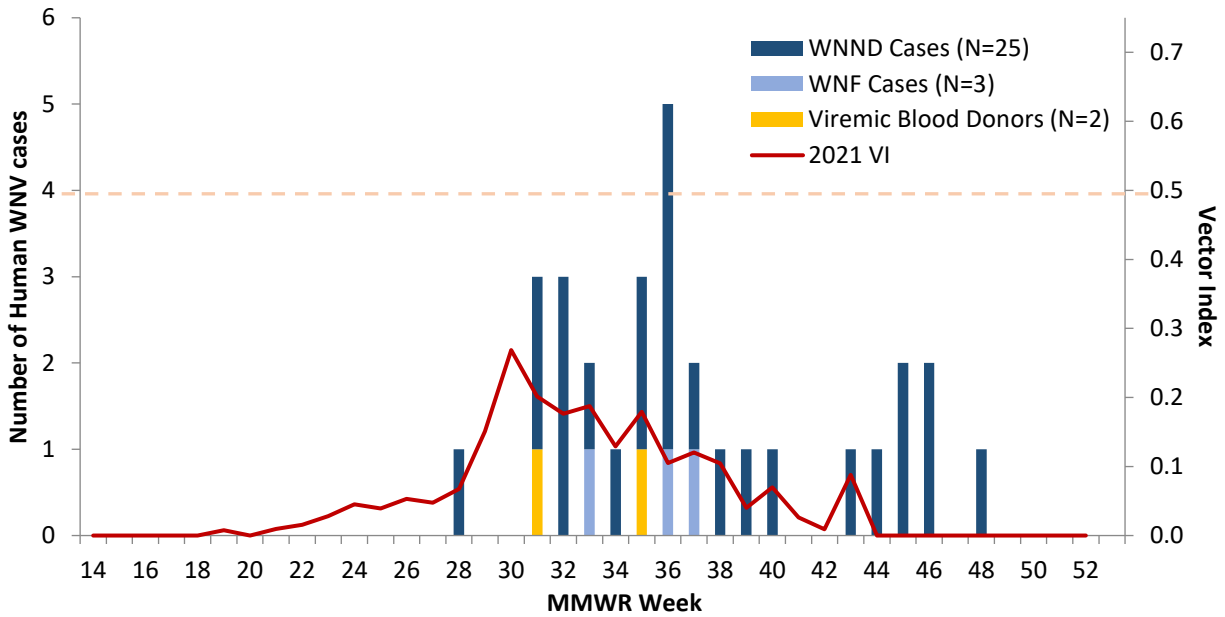
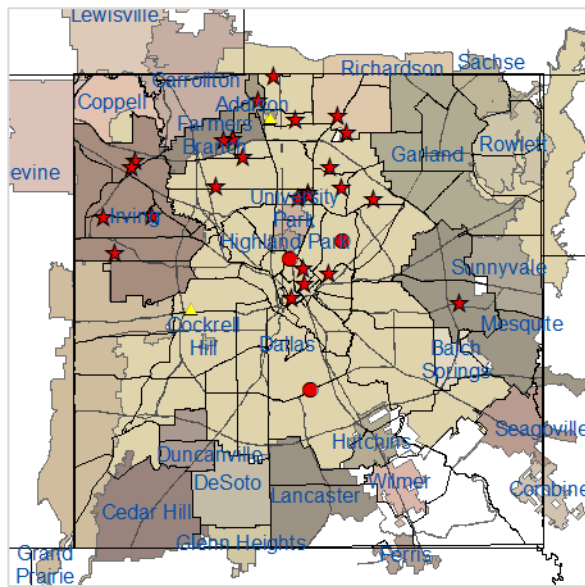


Table 4: Characteristics of West Nile Virus Human Cases: Dallas County, 2021

	Hospitalized	Deaths	Average Age (Range)	Female (%)
WNND (N=25)	25	3	64.0 (4 - 90)	10 (40.0)
WNF (N=3)	3	0	44.0 (29 - 54)	1 (33.3)
Total (N=28)	28	3	61.8 (4 - 90)	11 (39.3)

Figure 9: Arboviral Human Cases During 2021 Season (WNND = 25; WNF = 3; Dengue = 2)



★ West Nile Neuroinvasive ● West Nile Fever ▲ Dengue

PHONE

EMAIL

WEB

Figure 10: BG-Sentinel Trap Counts of Female *Aedes aegypti* and *Aedes albopictus* during 2021: Weeks 15 through 52

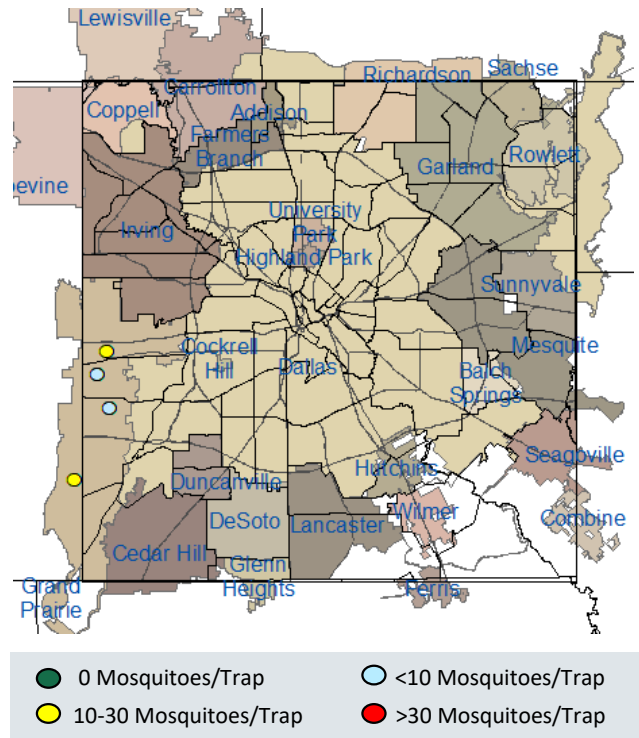


Figure 11: Average Numbers of *Ae. aegypti* per Trap-night: 2020 and 2021 Seasons*

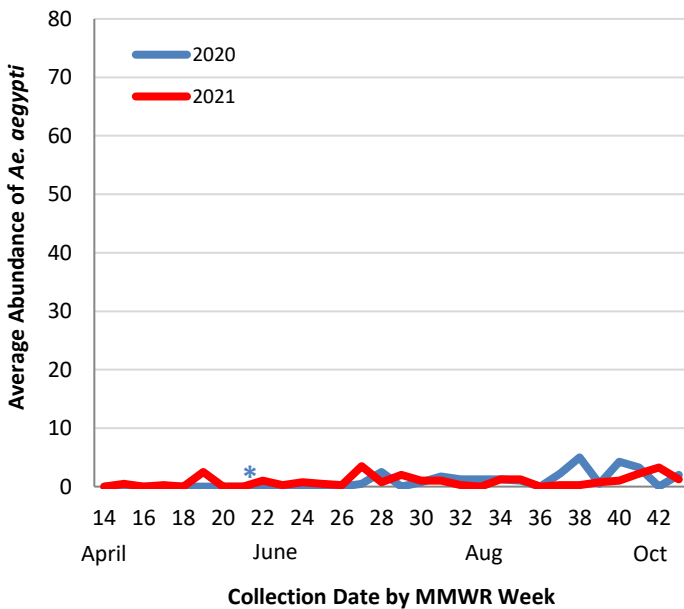
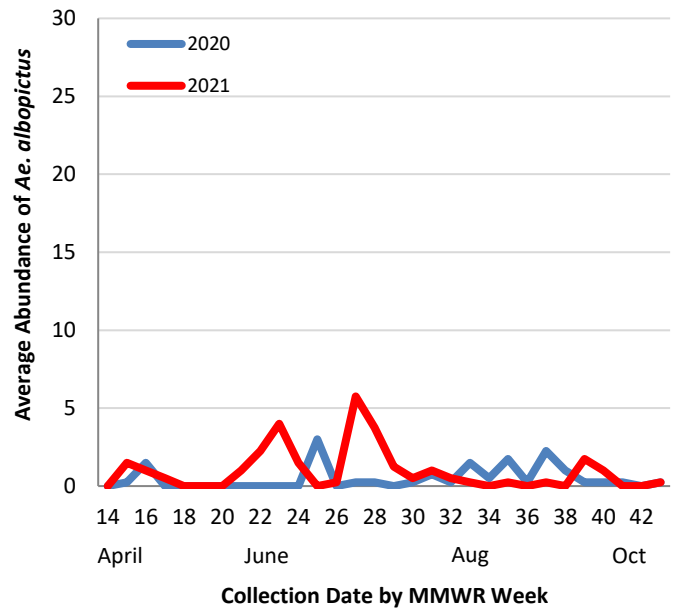


Figure 12: Average Numbers of *Ae. albopictus* per Trap-night: 2020 and 2021 Seasons*



* Routine *Aedes* BG-Sentinel trapping was conducted during week 15 - 43 in 2021

PHONE

EMAIL

WEB

Acknowledgements:

We are grateful for the partnership of the following contributors to our county-wide Arbovirus Surveillance Report:

Mosquito Trapping and Data from Environmental Health Services Divisions of the Following Cities:

Addison	Highland Park
Balch Springs	Hutchins
Carrollton	Irving
Cedar Hill	Lancaster
Cockrell Hill	Mesquite
Coppell	Richardson
Dallas	Rowlett
DeSoto	Sachse
Duncanville	Seagoville
Farmers Branch	Sunnyvale
Garland	University Park
Glenn Heights	Wilmer
Grand Prairie	

Mosquito Trapping and Data From:

DCHHS Environmental Health Services: Vector Control Division
Municipal Mosquito
Vector Disease Control International

Mosquito Speciation and Laboratory Testing:

DCHHS Environmental Health Services: Mosquito Lab
DCHHS LRN Laboratory
DSHS Laboratory Services, Arbovirus-Entomology Team
Municipal Mosquito

Human Case Reports and Investigations:

Area Acute Care Hospitals and Healthcare Providers
Dallas County Medical Examiner's Office
City of Dallas Vital Statistics Unit
Carter Blood Care
American Red Cross
DCHHS Acute Communicable Disease Epidemiology Division
Arbovirus Case Investigation and Clinical Inquiries Team

*For inquiries related to this Arbovirus Surveillance Report,
please contact: [Dongyoung Shin, Ph.D.](mailto:Dongyoung.Shin@texas.gov)*

PHONE

EMAIL

WEB