

Dallas County Health and Human Services Arbovirus Surveillance Report



Week 31 ending August 1, 2020

- In week 31, forty mosquito traps tested positive for WNV. A total of 127 mosquito traps have tested positive for WNV to date in 2020.
- One human WNV cases has been reported to date for 2020.
- No chikungunya or Zika cases have been reported year to date in 2020 in Dallas County.
- *Aedes albopictus* and *Aedes aegypti* are currently circulating in the area.

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

Week Ending	6/20	6/27	7/4	7/11	7/18	7/25	8/1	YTD
MMWR Week	25	26	27	28	29	30	31*	
Total Traps Placed in Dallas County ^a	222	243	225	244	251	250	242	4,174
Number of Positive Mosquito Traps (PHL; IL) ^c	4;1	4;0	6;1	9;0	19;0	35;1	39;1	120;7
Number of Pools Tested (PHL; IL) ^{b,c}	261;21	215;18	196;19	241;23	233;18	230;13	182;15	3,649;256
Number of Trap Results Currently Pending	0	0	0	0	0	0	0	0
Average Number of <i>Cx. quinquefasciatus</i> per Trap ^d	64.5	34.6	30.7	60.9	41.4	30.7	32.1	48.7
Total Number of <i>Cx. quinquefasciatus</i> Trapped and Tested	10,687	6,365	5,143	8,484	6,831	5,699	4,783	113,390
Number of Positive Mosquito Pools (PHL; IL) ^c	6;1	4;0	6;1	9;0	20;0	35;1	38;1	122;7
WNV Infection Rate per 1,000 <i>Cx. quinquefasciatus</i> ^e	0.66	0.63	1.38	1.08	3.09	7.14	10.55	
Weekly Vector Index (VI) ^f	0.04	0.02	0.04	0.07	0.13	0.22	0.34	
Presumptive WNV Viremic Blood Donors	0	0	0	0	0	0	0	0
WNV Human Cases (WNND; WNF) ^g	0;0	0;0	0;0	0;0	0;0	0;0	1;0	1;0

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

Week Ending	6/20	6/27	7/4	7/11	7/18	7/25	8/1	YTD
MMWR Week	25	26	27	28	29	30	31	
Total Biogents Sentinel-Traps Placed in Dallas County ^h	4	4	4	4	4	4	4	64
Average Number of <i>Aedes</i> per Trap ⁱ	3.3	0	0.8	2.8	0	1	2.5	0.8
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	1
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

*Data for most recent 2 weeks are preliminary, and reflect results reported as of 4:30 p.m. July 31, 2020.

- All traps deployed in municipalities submitting data to DCHHS since January 1, 2020. Includes traps without mosquitoes, malfunctioning traps and traps with pending results
- Excludes traps without female *Culex quinquefasciatus* identified. Maximum of 50 female *Culex quinquefasciatus* per pool; more than 1 pool may be tested per trap
- PHL = Public health laboratory (DSHS, DCHHS) testing performed by viral culture or CDC RT-PCR protocol; IL = Testing from independent labs by alternate methods
- Average abundance of female *Culex quinquefasciatus* mosquitoes per trap night/week (excludes non-working traps)
- WNV infection rates calculated using a Maximum Likelihood Estimation (MLE). *Biggerstaff BJ. PooledInfrate, version 4.0; Microsoft Excel Add-In; CDC 2007*
- 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
- Human cases by week of report to health department. WNND = West Nile Neuroinvasive Disease; WNF = West Nile Fever
- All Biogents (BG) Sentinel traps deployed in municipalities submitting data to DCHHS since Week 15.
- Average abundance of *Aedes albopictus* and *Aedes aegypti* mosquitoes per night/trap in BG-Traps (excludes non-working traps)
- Human CHKV cases by week of report to health department (AT : Autochthonous case; I : imported)
- Human Dengue cases by week of report to the health department
- Confirmed and probable human Zika cases by week of specimen collection date
- 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, 2020

Week Ending			6/20	6/27	7/4	7/11	7/18	7/25	8/1	YTD
MMWR Week			25	26	27	28	29	30	31*	
	# Human Cases	Range Total # of Traps/Week	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	
Addison	0	2-5	0	0	0	0	1	0	0	1
Balch Springs	0	3	2	1	0	2	1	1	1	7
Carrollton	0	4-7	0	1	0	2	0	0	0	3
Cedar Hill	0	0-5	0	0	0	1	0	1	1	3
Cockrell Hill	0	0-1	0	0	0	0	0	0	1	0
Coppell	0	0-8	0	0	0	0	0	0	0	0
Dallas	0	53-86	2	2	4	2	5	9	15	24
DeSoto	0	0-6	0	0	0	0	1	2	1	3
Duncanville	0	0-5	0	0	0	1	1	1	3	3
Farmers Branch	0	3-5	0	0	0	0	0	0	0	0
Garland	0	27-31	0	0	0	0	2	0	1	2
Glenn Heights	0	0-2	0	0	0	0	0	0	0	0
Grand Prairie	0	24-27	1	0	1	0	0	1	1	6
Highland Park	1	0-3	0	0	0	0	0	0	1	0
Hutchins	0	0-3	0	0	0	0	1	1	0	2
Irving	0	18-19	0	0	1	0	0	2	1	3
Lancaster	0	0-4	0	0	0	0	0	0	3	0
Mesquite	0	21-25	0	0	1	1	6	7	10	17
Richardson	0	12	0	0	0	0	0	1	1	2
Rowlett	0	7	0	0	0	0	0	1	0	1
Sachse	0	3	0	0	0	0	0	0	0	0
Seagoville	0	1-2	0	0	0	0	0	0	0	0
Sunnyvale	0	2	0	0	0	0	0	0	0	0
Unincorporated County	0	1-4	0	0	0	0	0	0	0	0
University Park	0	0-4	0	0	0	0	1	0	0	1
Wilmer	0	1	0	0	0	0	0	0	0	0
Total	0		5	4	7	9	19	27	40	117

*Data for most recent 2 weeks are preliminary, and reflect results reported as of 4:30 p.m. July 31, 2020. ¹Range of numbers of traps placed weekly, in weeks 1 - 31.

Figure 1: All WNV Negative and Positive Mosquito Traps Collected During 2020: Weeks 1-31* (N=4,174)

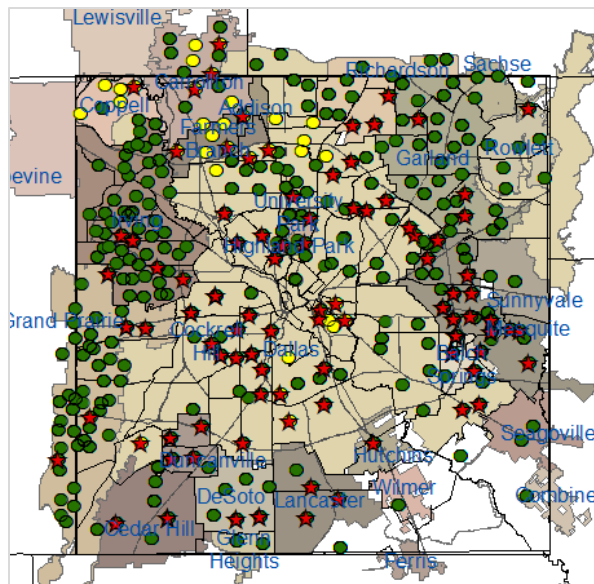
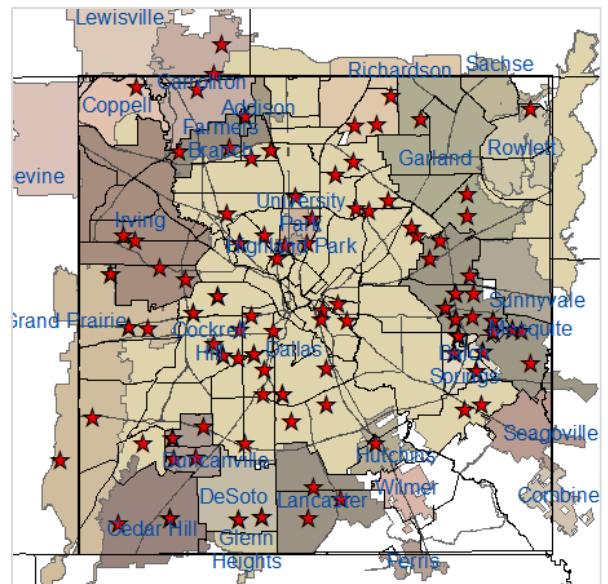


Figure 2: Cumulative WNV Positive Mosquito Traps Collected: Weeks 1-31* (N=117)



★ Positive Traps ● Negative Traps ● Pending Traps

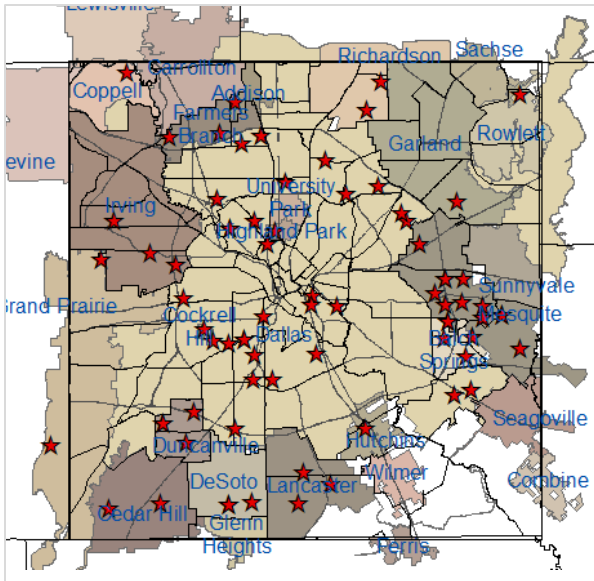
*Data for most recent 2 weeks are preliminary.

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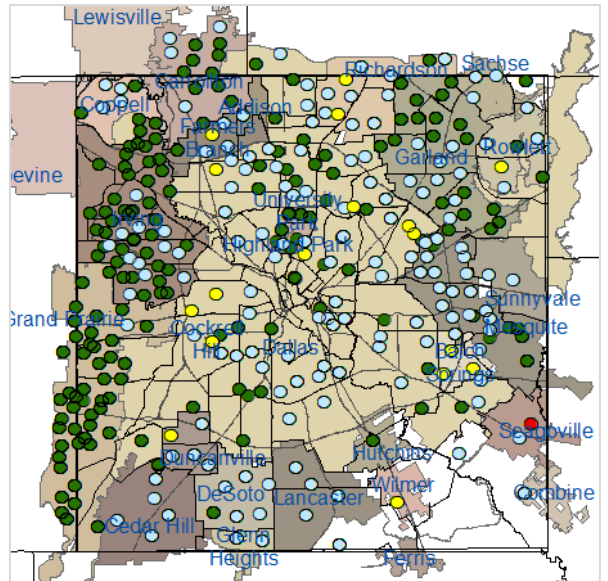
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Figure 3: WNV Positive Mosquito Traps Collected During 2020: Weeks 30 and 31* (N=67)



★ Positive Traps

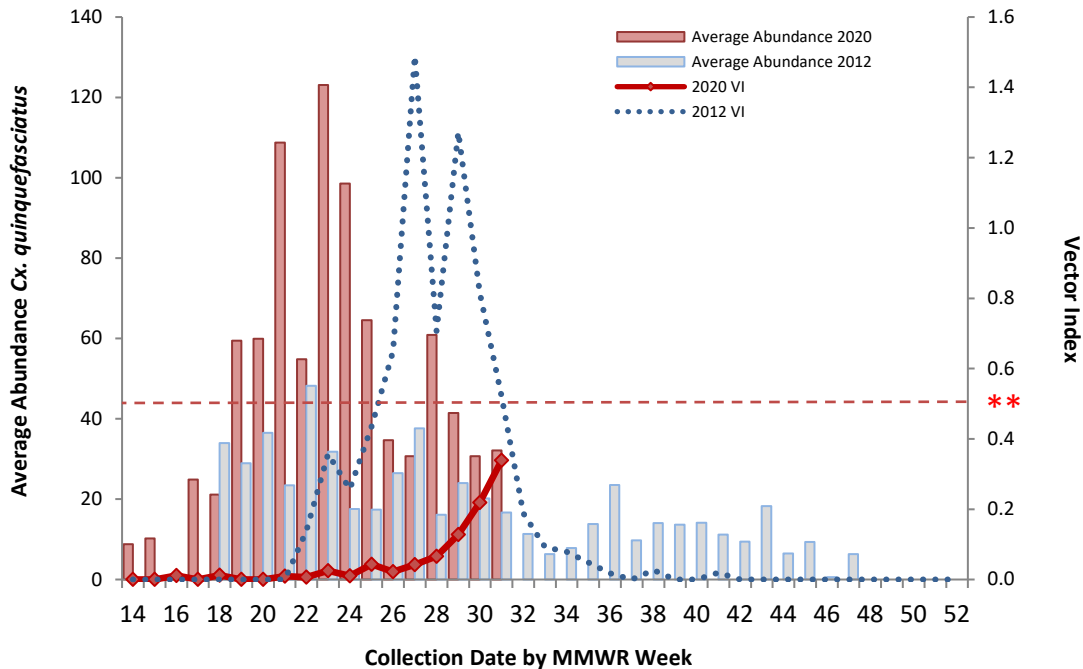
Figure 4: Trap Counts of Female *Cx. quinquefasciatus* from 2020 Season: Weeks 1-31*



● < 100 Mosquitoes/Trap ● 100 - 499 Mosquitoes/Trap
● 500 - 1000 Mosquitoes/Trap ● >1000 Mosquitoes/Trap

*Figure 4 only shows traps for which results were available; malfunctioning traps were excluded. Almost all traps are at fixed sites.
Note: Most recent 1-2 weeks data are preliminary and subject to change following receipt of data still pending.

Figure 5: Average Numbers of Female *Cx. quinquefasciatus* per Trap-night and WNV Vector Index by Week: 2012 Season and 2020 Season (through Week 31*)



** Vector Index of 0.50 is the historical threshold associated with larger local epidemics of WNV illnesses in humans.
Note: Most recent 1-2 weeks data are preliminary and subject to change following receipt of data still pending.

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Figure 6: WNV Vector Index by Week: 2012 - 2020 Seasons

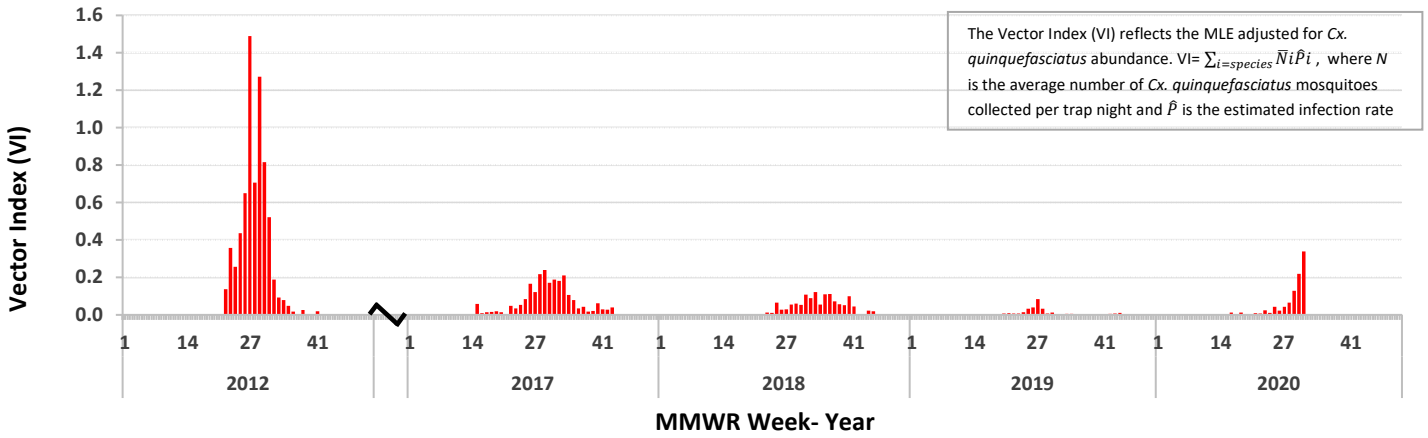


Figure 7: Average Numbers of Female *Cx. quinquefasciatus* per Trap-night by Week: 2012 - 2020 Seasons

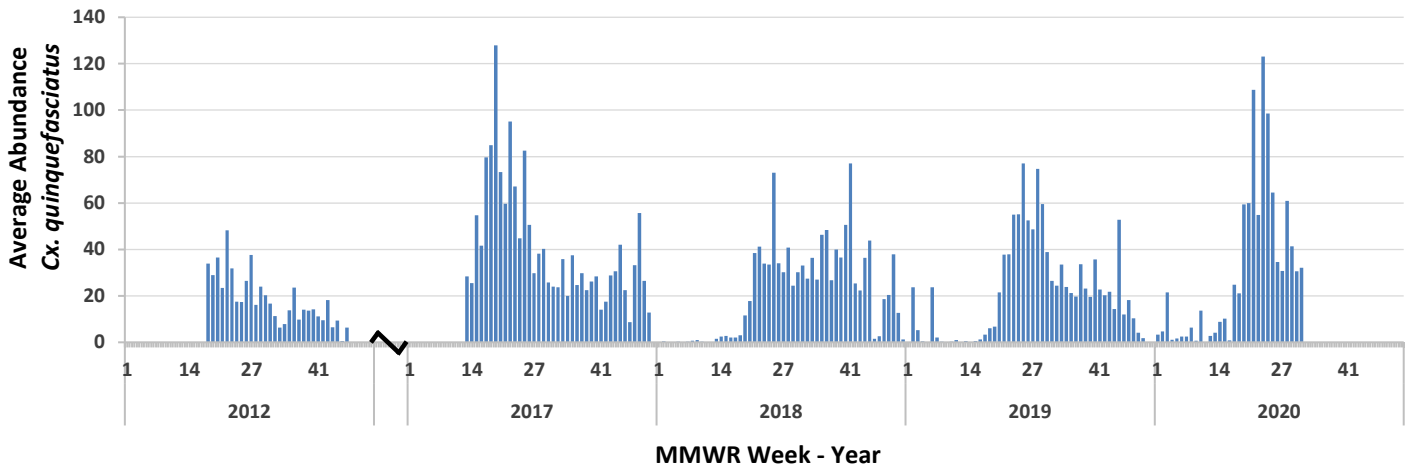
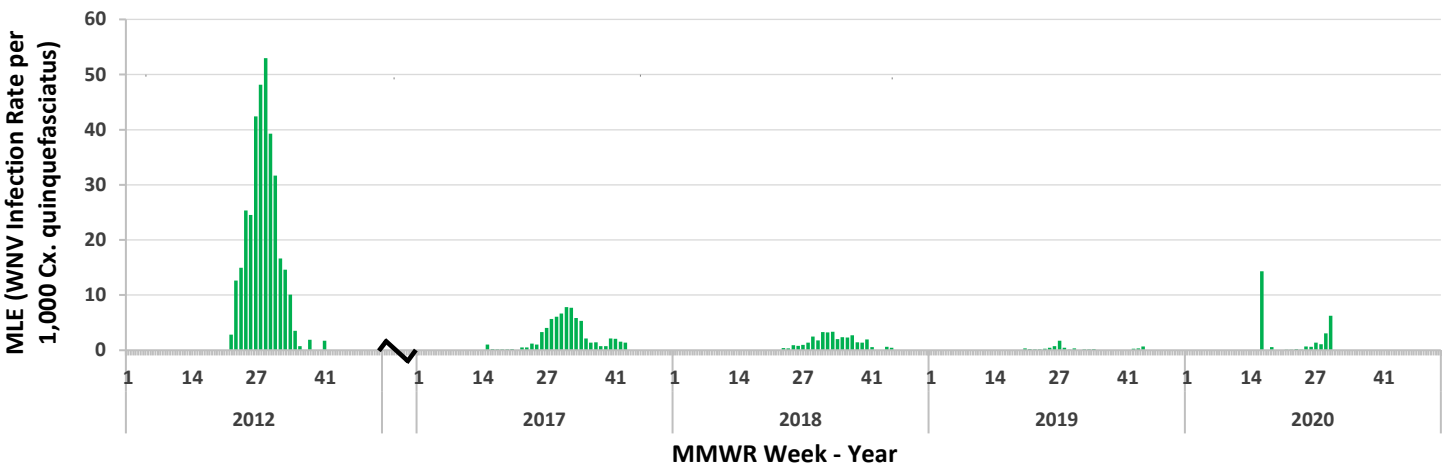


Figure 8: MLE (WNV Infection Rate per 1,000 *Cx. quinquefasciatus*) by Week: 2012 - 2020 Seasons



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Figure 9: BG-Sentinel Trap Counts of Female *Aedes aegypti* and *Aedes albopictus* during 2020: Weeks 15 through 31[†]

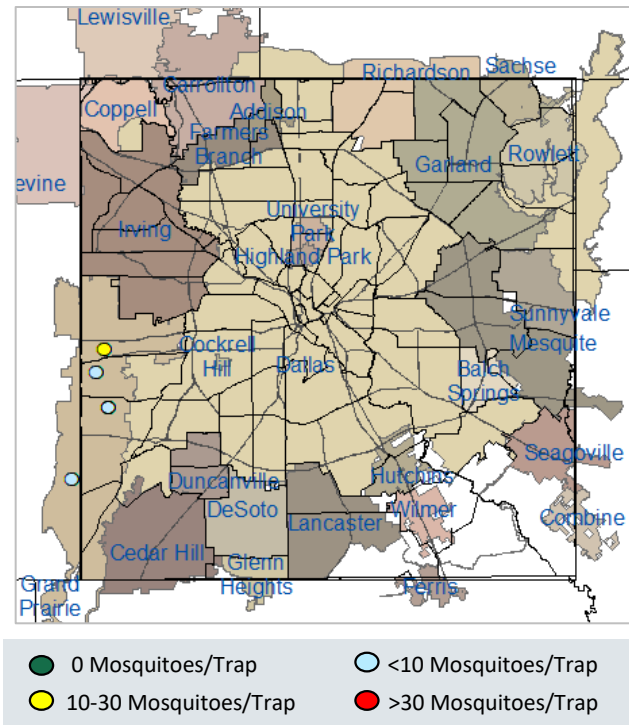


Figure 10: Average Numbers of *Ae. aegypti* per Trap-night: 2019 and 2020 Seasons^{*,†}

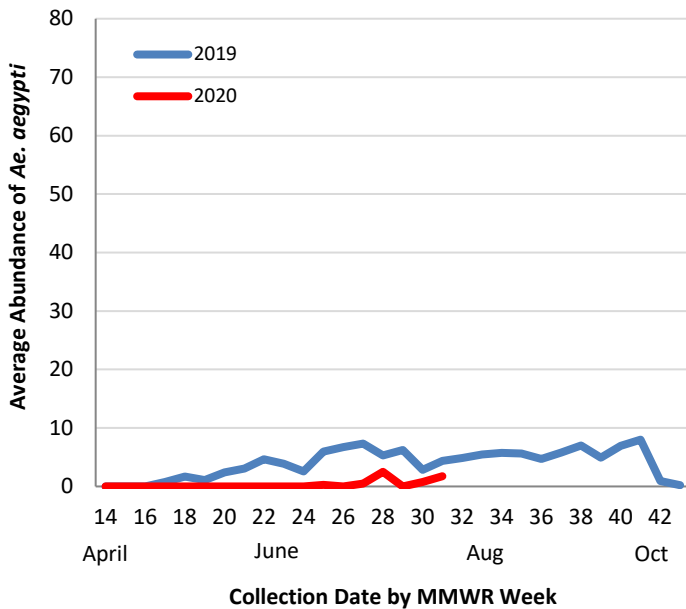
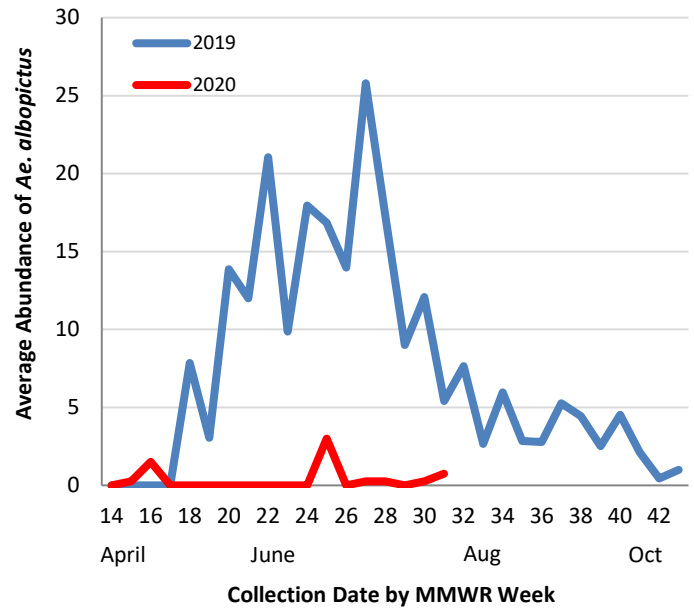


Figure 11: Average Numbers of *Ae. albopictus* per Trap-night: 2019 and 2020 Seasons^{*,†}



^{*}Data for most recent 2 weeks are preliminary
[†]Routine *Aedes* BG-Sentinel trapping was conducted during week 15 - 31 in 2020

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Acknowledgements:

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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	

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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

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