ARBOVIRUS ACTIVITY IN CONNECTICUT, 2014

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Statewide mosquito trapping was conducted from June 2 through October 15 at 91 fixed collection sites. Approximately one-third of the sites were located in densely populated residential locales along urban/suburban corridors in the coastal southwestern corner of the state extending east through New Haven and north to greater Hartford. Trap sites typically included parks, greenways, golf courses, undeveloped wood lots, sewage treatment plants, dumping stations, and temporary wetlands associated with waterways. Trapping locations in the other regions of the state were established in more sparsely populated rural settings that included permanent fresh-water swamps (red maple/white cedar) and bogs, coastal salt marshes, horse stables, and swamp-forest border environs.

Mosquito trapping was conducted with CO_2 (dry ice)-baited CDC miniature light traps equipped with aluminum domes, and gravid mosquito traps baited with a lactalbumin-yeast-hay infusion. Traps were placed in the field in the afternoon, operated overnight, and retrieved the following morning. Trapping frequency was minimally made once every ten days at each trap site over the course of the entire season. Adult mosquitoes were transported alive to the laboratory each morning in an ice chest lined with cool packs. Mosquitoes were immobilized with dry ice and transferred to chill tables where they were identified to species with the aid of a stereo microscope (90X) based on morphological characters. Female mosquitoes were pooled in groups of 50 or fewer by species, collection date, trap type, and collection site and stored at -80^{o}C until processed for virus.

Aliquots of each mosquito pool were inoculated into Vero cell cultures for detection of West Nile virus (WN), eastern equine encephalitis (EEE), and other mosquito-borne arboviruses of public health importance. Virus isolates from mosquito pools were tested for WN, EEE, Flanders (FL), Jamestown Canyon (JC), Cache Valley (CV), Trivittatus (TVT), Highlands J (HJ), LaCrosse (LAC), St. Louis Encephalitis (SLE), and Potosi (PTV) viruses. Isolated viruses were identified by Real Time (TaqMan) reverse transcriptase polymerase chain reaction (RT-PCR) or standard RT-PCR using virus-specific primers. All of the virus isolation work was conducted in a certified Bio-Safety Level 3 laboratory at the CAES.

In 2014, a total of 229,097 mosquitoes (12,678 pools) representing 39 species were trapped and tested. A total of 68 isolations of WN virus were made from 7 mosquito species: *Culex pipiens* = 52, *Cx. restuans* = 10, *Cx. salinarius* = 2, *Aedes vexans* = 1, *Coquillettidia perturbans* = 1, *Culiseta melanura* = 1, *Ochlerotatus trivittatus* = 1, collected at 20 sites in 15 towns in 5

counties (Fairfield, Hartford, Litchfield, New Haven, and New London). The first positive mosquitoes were collected on July 10, and the last on October 8. The majority of WN virus activity was detected in densely populated urban and suburban regions in southern Fairfield county. Six cases of WN were locally acquired (3 = encephalitis/meningitis, 3 = fever) with no fatalities. The age range was 23 to 63 years, and the median age was 46 years. Date of onset ranged from August 18 to October 6. Human cases were temporally and spatially consistent with WN virus isolations from mosquito pools. No horse cases of WN were reported.

There were no EEE isolations made from mosquitoes, and there were no equine or human cases reported.

Other mosquito-borne viruses isolated included: Cache Valley (CV) = 25 isolates from 7 species (July 28 – October 8); Jamestown Canyon (JC) = 23 isolates from 9 species (June 5 - August 18); Trivittatus Virus (TVT) = 1 isolates from 1 species (July 30)

Mosquito species trapped and tested for arboviruses in Connecticut, 2014

Species	Number Mosquitoes	Number Pools	Virus						
			CV	EEE	HJ	JC	PTV	TVT	WNV
Aedes albopictus	133	78	2						
Ae. cinereus	12,073	736				1			
Ae. vexans	17,551	979	2			2			1
Anopheles barberi	1	1							
An. crucians	19	5							
An. punctipennis	2,865	649	6			1			
An. quadrimaculatus	945	230							
An. walker	7,180	366	3						
Coquillettidia perturbans	66,688	1,870	5			3			1
Culex erraticus	9	4							
Cx. pipiens	9,494	880							52
Cx. restuans	6,996	760							10
Cx. salinarius	4,689	365							2
Cx. territans	68	47							
Culiseta melanura	5,401	531							1
Cs. minnesotae	43	9							
Cs. morsitans	27	20							
Oc. abserratus	2,991	168				3			
Oc. atlanticus	3	2							
Oc. aurifer	6,110	261				1			
Oc. canadensis	47,336	1,376				5			
Oc. cantator	3,600	259				4			
Oc. communis	23	3							
Oc. diantaeus	1	1							
Oc. excrucians	473	76							

Oc. intrudens	1	1							
Oc. japonicus	2,315	646							
Oc. provocans	67	10				1			
Oc. sollicitans	155	19							
Oc. sticticus	1,953	144							
Oc. stimulans	560	86				1			
Oc. taeniorhynchus	7,067	190	5						
Oc. thibaulti	6,552	273							
Oc. triseriatus	2,009	402							
Oc. trivittatus	7,832	510				1		1	1
Psorophora columbiae	1	1							
Ps. ferox	3,855	338	2						
Ps. howardii	3	2							
Uranotaenia sapphirina	2,008	380							
TOTAL	**229,097**	**12,678**	**25**	**0**	**0**	**23**	**0**	**1**	**68**

CV = Cache Valley, **EEE** = Eastern Equine Encephalitis, **HJ** = Highlands J, **JC** = Jamestown Canyon, **PTV** = Potosi Virus, **TVT** = Trivittaus Virus, **WNV** = West Nile