

2020 Vermont Mosquito Surveillance Report

Vermont Agency of Agriculture, Food & Markets

The Vermont Agency of Agriculture, Food & Markets conducted its annual statewide surveillance of mosquitoes from June 15 through October 9, 2020 (17 weeks), tracking West Nile Virus (WNV) and Eastern Equine Encephalitis (EEE) presence in the state. Mosquitoes were collected from 96 permanent trap locations in 82 towns within all of Vermont's 14 counties.

Two types of traps were used: resting box traps (RBTs) and reduced CDC light traps (CDCs). Resting box traps target the main mosquito vector (transmitter) of EEE. Reduced CDC light traps were co-located with resting box traps at wetland locations and were used as a sensing tool for mosquito species and abundance in the area. Collections were made weekly and processed at the Vermont Agricultural and Environmental Laboratory (VAEL) in Randolph Center. The collections were identified to species and known or suspected primary and secondary vector species were pooled into vials of 1 to 50 mosquitoes. The mosquito pool samples were processed at the Centers for Disease Control and Prevention (CDC) in Fort Collins, Colorado for arbovirus testing. Mosquito arbovirus testing is typically conducted at the Vermont Department of Health Laboratory, but due to COVID-19 testing taking priority, mosquito samples were shipped overnight to the CDC for testing.

In addition to routine WNV and EEE surveillance, surveillance for the Asian Tiger Mosquito (*Aedes albopictus*, the mosquito species known to vector dengue, chikungunya, and yellow fever in areas of endemic presence, and suspected to be a weak vector species for Zika virus) was conducted at 18 sites throughout southern Vermont. Two BG-Sentinel trap locations and 16 oviposition trap locations were surveyed for 17 and 10 weeks, respectively.

2020 At-A-Glance Vermont Mosquito Arbovirus Data

- 33,358 mosquitoes collected
- 1,121 mosquito pools submitted for testing
- 0 mosquito pools were positive for WNV
- 0 mosquito pools were positive for EEE

Vermont Agency of Agriculture's Mosquito Surveillance Results and Trap Locations (RBT and CDC Traps), 2020

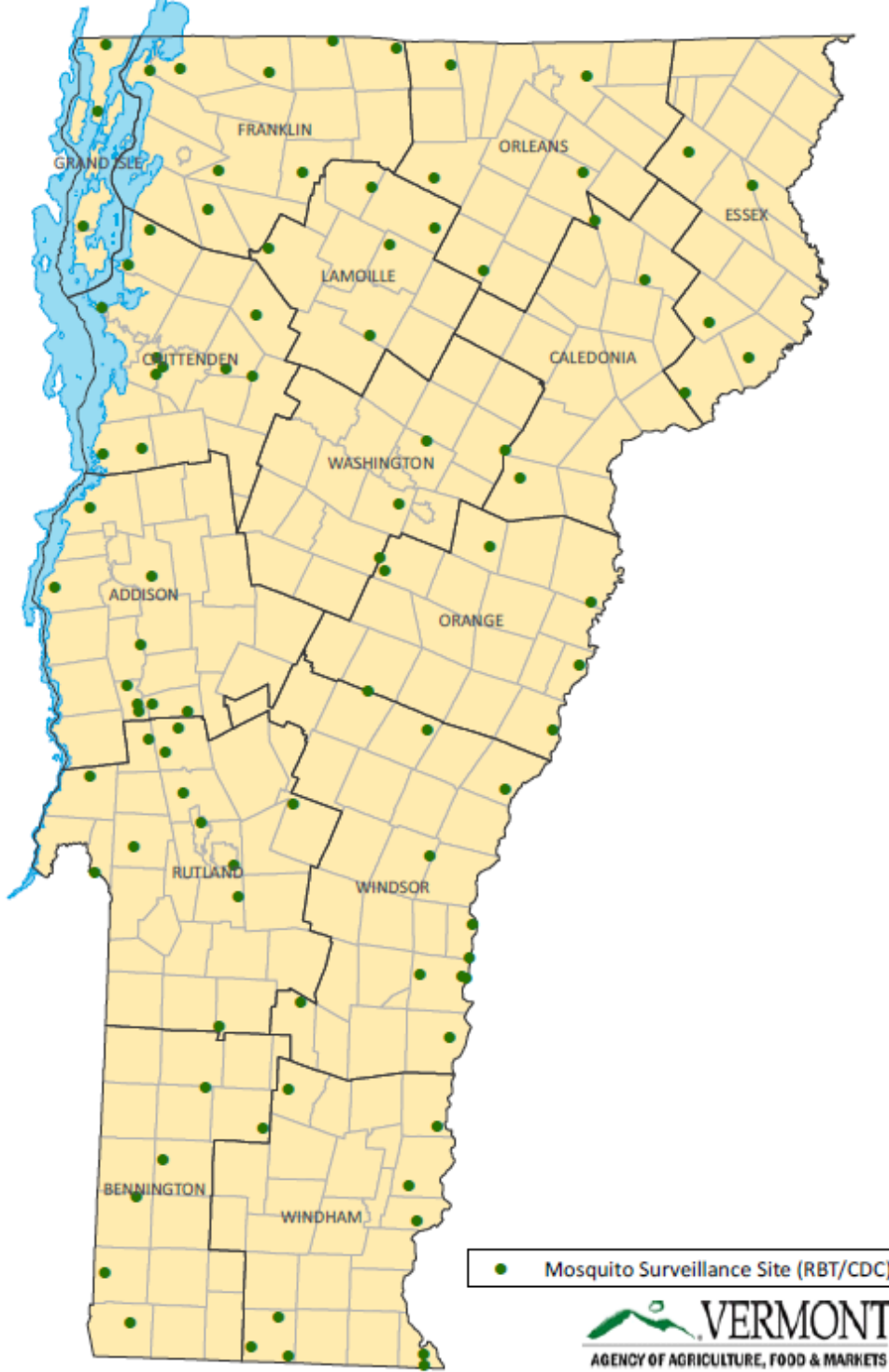


Table 1. 2020 Vermont Arbovirus Testing Results (Vermont Agency of Agriculture)

CDC Week #	Beginning Sunday	Pools Tested	EEE+ Pools	WNV+ Pools
25	14-Jun	93	0	0
26	21-Jun	65	0	0
27	28-Jun	77	0	0
28	5-Jul	137	0	0
29	12-Jul	116	0	0
30	19-Jul	104	0	0
31	26-Jul	93	0	0
32	2-Aug	71	0	0
33	9-Aug	86	0	0
34	16-Aug	60	0	0
35	23-Aug	53	0	0
36	30-Aug	38	0	0
37	6-Sep	43	0	0
38	13-Sep	13	0	0
39	20-Sep	26	0	0
40	27-Sep	30	0	0
41	4-Oct	16	0	0
Total		1,121	0	0

Table 2. 2020 Vermont Towns Trapped ($n = 82$) (Vermont Agency of Agriculture)

Town	County
Addison	Addison
Alburgh	Grand Isle
Bakersfield	Franklin
Barton	Orleans
Belvidere	Lamoille
Bennington	Bennington
Benson	Rutland
Berkshire	Franklin
Berlin	Washington
Bolton	Chittenden
Brandon	Rutland
Brighton	Essex
Brookfield	Orange
Burke	Caledonia
Cambridge	Lamoille
Castleton	Rutland
Charlotte	Chittenden
Colchester	Chittenden
Concord	Essex
Cornwall	Addison
Craftsbury	Orleans
Danby	Rutland
Derby	Orleans
E Montpelier	Washington
Eden	Lamoille
Fair Haven	Rutland
Fairfax	Franklin
Fairfield	Franklin

Town	County
Fairlee	Orange
Ferdinand	Essex
Ferrisburgh	Addison
Franklin	Franklin
Grand Isle	Grand Isle
Groton	Caledonia
Highgate	Franklin
Hyde Park	Lamoille
Jay	Orleans
Jericho	Chittenden
Killington	Rutland
Leicester	Addison
Londonderry	Windham
Lowell	Orleans
Lunenburg	Essex
Manchester	Bennington
Marshfield	Washington
Milton	Chittenden
Morristown	Lamoille
New Haven	Addison
Newbury	Orange
Norwich	Windsor
Orange	Orange
Pittsford	Rutland
Pownal	Bennington
Proctor	Rutland
Putney	Windham

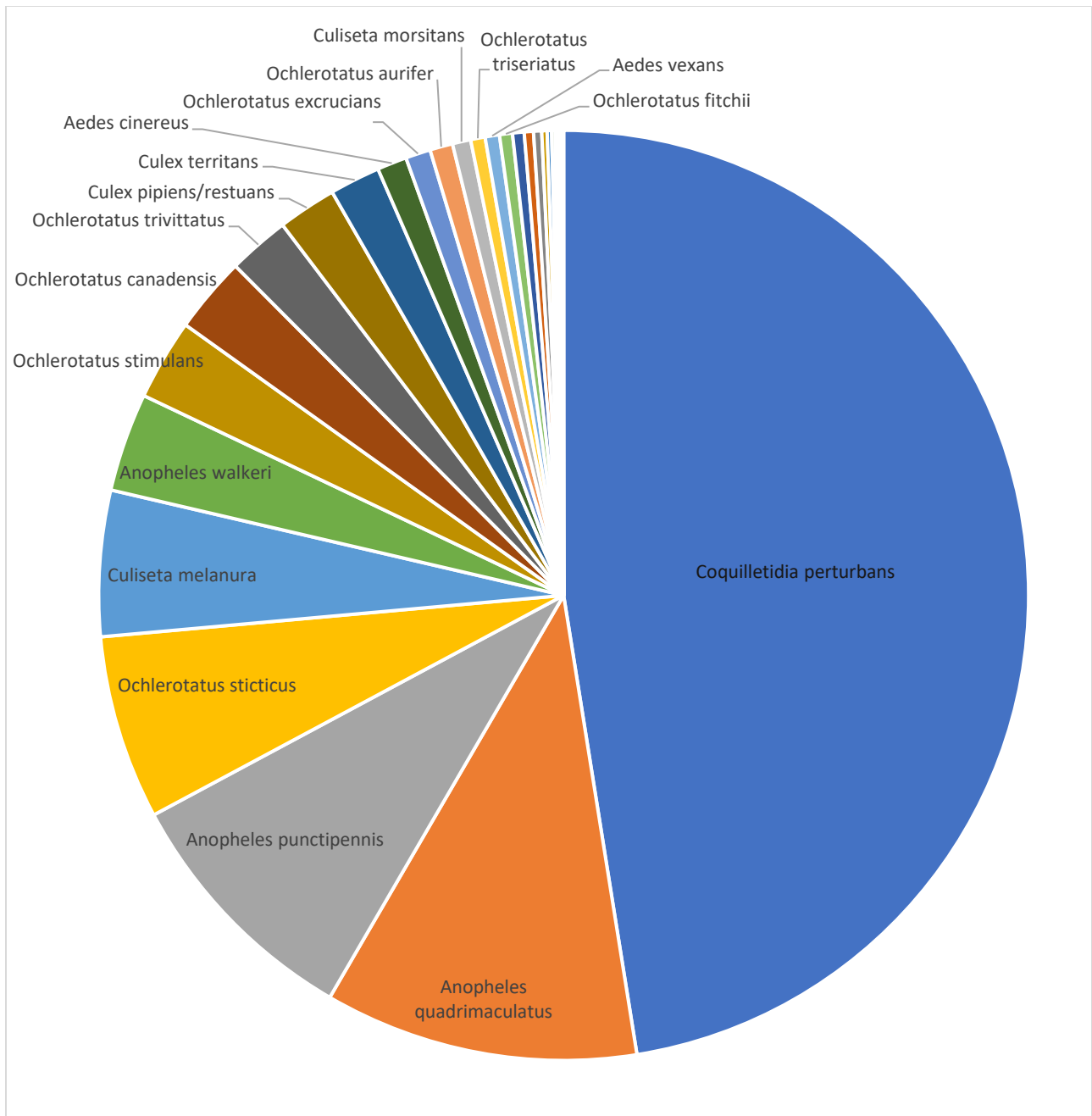
Town	County
Randolph	Orange
Richford	Franklin
Rockingham	Windham
Royalton	Windsor
Rutland	Rutland
S Burlington	Chittenden
Shaftsbury	Bennington
Shrewsbury	Rutland
Springfield	Windsor
Stratton	Windham
Sudbury	Rutland
Sunderland	Bennington
Sutton	Caledonia
Swanton	Franklin
Thetford	Orange
Underhill	Chittenden
Vernon	Windham
Victory	Essex
Weathersfield	Windsor
Westminster	Windham
Weston	Windsor
Whiting	Addison
Whitingham	Windham
Williamstown	Orange
Williston	Chittenden
Windsor	Windham
Woodstock	Windsor

2020 Vermont Mosquito Species Statistics (Vermont Agency of Agriculture)

Table 3. 2020 Mosquito Species Collected and Tested for WNV and EEE

Species	Number Collected	Collected (% of total)	Number Tested for WNV and EEE	Tested for WNV and EEE (% of total)
<i>Coquilletidia perturbans</i>	15,838	47.48	8,904	73.24
<i>Anopheles quadrimaculatus</i>	3,639	10.91	0	0.00
<i>Anopheles punctipennis</i>	2,931	8.79	0	0.00
<i>Ochlerotatus sticticus</i>	2,136	6.40	0	0.00
<i>Culiseta melanura</i>	1,689	5.06	1,689	13.89
<i>Anopheles walker</i>	1,143	3.43	0	0.00
<i>Ochlerotatus stimulans</i>	939	2.81	0	0.00
<i>Ochlerotatus canadensis</i>	882	2.64	882	7.26
<i>Ochlerotatus trivittatus</i>	714	2.14	0	0.00
<i>Culex pipiens/restuans</i>	680	2.04	357	2.94
<i>Culex territans</i>	586	1.76	0	0.00
<i>Aedes cinereus</i>	344	1.03	0	0.00
<i>Ochlerotatus excrucians</i>	290	0.87	0	0.00
<i>Ochlerotatus aurifer</i>	265	0.79	0	0.00
<i>Culiseta morsitans</i>	212	0.64	212	1.74
<i>Ochlerotatus triseriatus</i>	168	0.50	0	0.00
<i>Aedes vexans</i>	166	0.50	0	0.00
<i>Ochlerotatus fitchii</i>	150	0.45	0	0.00
<i>Culex salinarius</i>	134	0.40	103	0.85
<i>Ochlerotatus punctor</i>	107	0.32	0	0.00
<i>Ochlerotatus provocans</i>	94	0.28	0	0.00
<i>Anopheles earlei</i>	62	0.19	0	0.00
<i>Psorophora ferox</i>	51	0.15	0	0.00
<i>Ochlerotatus intrudens</i>	41	0.12	0	0.00
<i>Uranotaenia sapphirina</i>	30	0.09	0	0.00
<i>Ochlerotatus japonicus</i>	25	0.07	0	0.00
<i>Ochlerotatus communis</i>	24	0.07	0	0.00
<i>Culiseta minnesotae</i>	10	0.03	10	0.08
<i>Ochlerotatus diaantaeus</i>	5	0.01	0	0.00
<i>Ochlerotatus atropalpus</i>	3	0.01	0	0.00
Total	33,358		12,157	

Mosquito species collected in Vermont, 2020 (Vermont Agency of Agriculture)



Vermont Agency of Agriculture's Targeted *Aedes albopictus* Surveillance

Aedes albopictus (Asian Tiger Mosquito) is believed to be a potential weak vector of Zika, and a competent vector of dengue, chikungunya, and yellow fever in tropical and subtropical areas where these diseases are endemic. It has an estimated geographic range that includes southern Vermont; however, those diseases are not endemic to our area.

In 2020, 2 BG-Sentinel traps were set for 17 weeks in 2 towns on the Vermont/Massachusetts border. Additionally, 16 oviposition trap locations were surveyed for 10 weeks (June 30 – September 11). Sites were located along major truck routes at rest areas, truck stops, tire dealerships, and transfer stations, as this mosquito species is a container breeder with a preference for tires. Eggs were collected, counted at VAEL, and processed at the Massachusetts Department of Public Health Laboratory for rearing and larval identification.

Aedes albopictus mosquito eggs were found at 1 site in Rutland County for 1 week at the end of July. This was the first documented detection of this species in this county. *Aedes albopictus* mosquito eggs were also found at 1 site in Windham County for five consecutive weeks, from the last week of July through the end of August. *Aedes albopictus* had been detected for the first time in Vermont at this Windham County site in 2019.

Continued surveillance will help determine if this species is overwintering or is being annually reintroduced.

