VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE, LAC, DENV, CHIK and ZIKV

Prepared by Lisa M. Reed, Diana Carle and Dina Fonseca
Center for Vector Biology, Rutgers University

Final Report: 16 November, 2018

This New Jersey Agricultural Experiment Station report is supported by Rutgers University, Hatch funds, funding from the NJ State Mosquito Control Commission and with the participation of the Department of Health, Department of Agriculture and of the 21 county mosquito control agencies of New Jersey.

Culiseta melanura and Eastern Equine Encephalitis

SITE/Boxes	Inland or Coastal	Historic Population Mean	Current Weekly Mean	Total Tested* (Collected)	Total Pools Tested* (Submitted)	EEE Isolation Pools	MFIR
Bass River (Burlington Co.)/5	**Coastal**	nc	nc	22	4		
Green Bank (Burlington Co.)/25	**Coastal**	nc	nc	484	19		
Corbin City (Atlantic Co.)/25	**Coastal**	nc	nc	265	21		
Dennisville (Cape May Co.)/50	**Coastal**	nc	nc	325	21		
Winslow (Camden Co.)/50	**Inland**	nc	nc	2192	54	4	1.825
Centerton (Salem Co.)/50	**Inland**	nc	nc	455	23	2	4.396
Turkey Swamp (Monmouth Co.)/49	**Inland**	nc	nc	535	22	1	1.869
Glassboro (Gloucester Co.)/50	**Inland**	nc	nc	183	21		

*Current week (in parentheses) results pending. ‡ corrected from previous week NC=no collection

Remarks: This is the report for the season. For the 2018 season, there were 14 detections of EEE among submitted mosquito pools, seven at resting box sites (4 at Winslow, 2 at Centerton, 1 at Turkey Swamp) and seven from county-set traps. All positive pools are in the enzootic vector, *Culiseta melanura.* Five horses have tested positive for EEE; all were not vaccinated and all were euthanized.

Statewide, 10,473 *Cs. melanura* from 648 pools have been tested, with 14 positive pools detected for an overall *Cs. melanura* MFIR of 1.337. 19387 specimens in 1955 pools from 26 other species have also been tested, with no positives detected. Overall MFIR for all species statewide is 0.469.

Traditional Resting Box Sites: 4461 *Cs. melanura* from 185 pools have been tested for EEE in 2018. No additional positive pools were detected at the traditional resting box sites to the end of the season for a total of 7 positive pools at the traditional resting box sites.

	Additional *Cs. melanura* trapped by counties *traps with positives indicated in **BOLD UNDERLINED.**				
County	**Trap types***	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Atlantic	CO2,**GR**, RB	55	1379	1	0.725
Bergen	RB	9	26		
Burlington	**CDCL**	77	3121	5	1.602
Cape May	GR, RB	222	522		
Cumberland	BGSCL, **RB**	27	192	1	5.208
Gloucester		11	422		
Middlesex	RB	2	21		
Monmouth	OTHER	1	2		
Morris	CDCL	1	1		
Ocean	CDCL, RB	38	193		
Passaic	RB	4	4		
Salem	CDCL	6	53		
Sussex	ABC	9	70		
Warren	CDCL	1	6		
TOTAL		**463**	**6012**	**7**	**1.164**

Additional County-set *Cs. melanura*: Counties maintain trap sites for *Cs. melanura* in other areas, using a variety of traps. A total of 7 county-trapped positive pools have been detected, one in Atlantic and four in Burlington County. The last came from Cumberland County, collected on 2 Oct.

Horses and Humans: Five horses have been reported with EEE. The fifth horse is a 12 year old gelding in Gloucester County. Symptom onset was 12 Sep and the unvaccinated horse was euthanized on the 13th Sep. The fourth horse was reported in Ocean County. This gelding of unknown age and unknown vaccination history showed symptoms on the 3rd of September and was euthanized on the 4th. A third EEE horse was been reported in Ocean County. This seven year old had an unknown vaccination history, but had apparently been purchased 2 months prior. Date of onset and euthanasia was 4 Sept. The second reported horse with EEE was euthanized on 27 Aug in Camden County. This 12 year old gelding had not been vaccinated this year. The first horse case of EEE was reported in a 5 year-old mare in Monmouth County. This horse was reportedly vaccinated last year, but was not current for 2018. She was euthanized on 18 Aug. Last year, there were 6 horses detected with EEE. EEE is nearly always fatal for those horses without a complete vaccination history. Horses in New Jersey that have gone down in the past with EEE have either an incomplete vaccination history or NO vaccination history. ***Horse owners are urged to make sure their horses are up to date on their vaccinations. Horse cases are known to occur through October and sometimes into November (see link below).*** Other sensitive species are non-native birds, such as Ostriches/Emus and Gallinaceous birds such as pheasants of Eurasian origins.

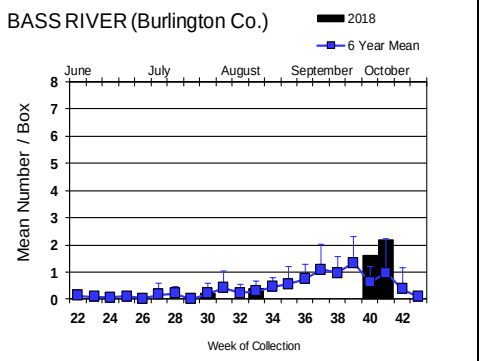
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

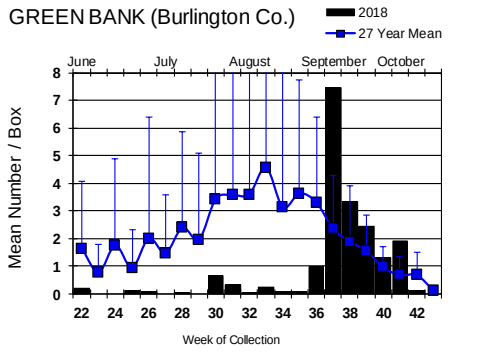
Additional Species: Twenty-six additional species were tested for EEE. No positives were detected.

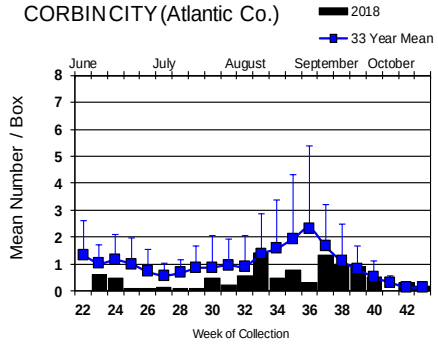
Species other than *Cs. melanura*	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	15	71		
Aedes atlanticus	4	59		
Aedes canadensis canadensis	5	63		
Aedes cantator	4	4		
Aedes infirmatus	3	6		
Aedes japonicus	3	21		
Aedes mitchellae	1	2		
Aedes sollicitans	17	103		
Aedes taeniorhynchus	4	89		
Aedes triseriatus	2	6		
Aedes vexans	10	231		
Anopheles barberi	2	17		
Anopheles bradleyi	77	502		
Anopheles crucians	3	25		
Anopheles punctipennis	28	142		
Anopheles quadrimaculatus	3	4		
Coquillettidia perturbans	92	1835		
Culex erraticus	188	1731		
Culex pipiens	1015	11689		
Culex restuans	1	1		
Culex salinarius	382	1756		
Culex spp.	78	641		
Culiseta inornata	1	10		
Psorophora ciliata	2	9		
Psorophora columbiae	2	7		
Psorophora ferox	12	357		
Uranotaenia sapphirina	1	6		
State Total	**1955**	**19387**		

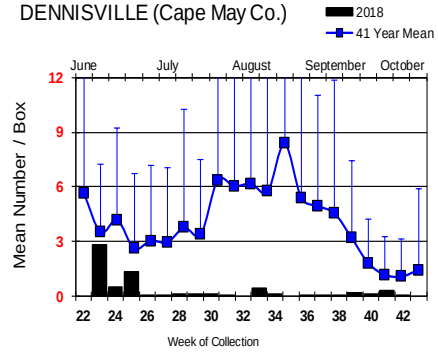
Culiseta melanura Populations

Coastal

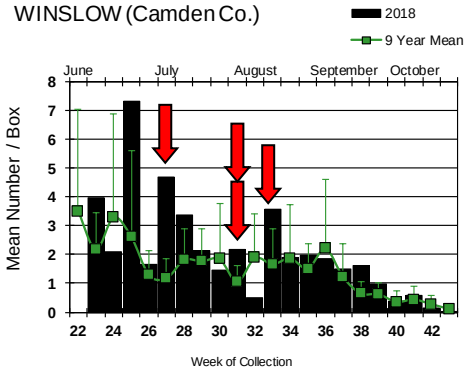


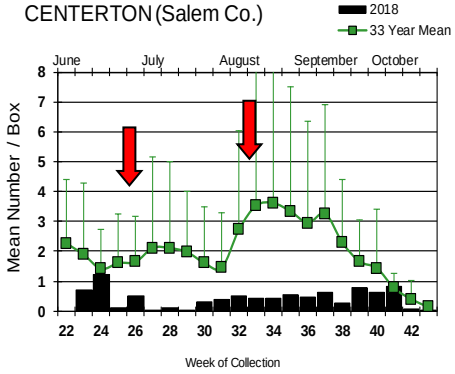


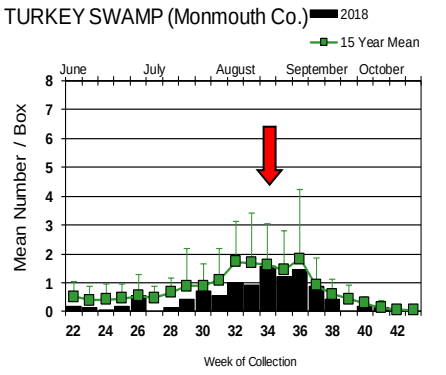


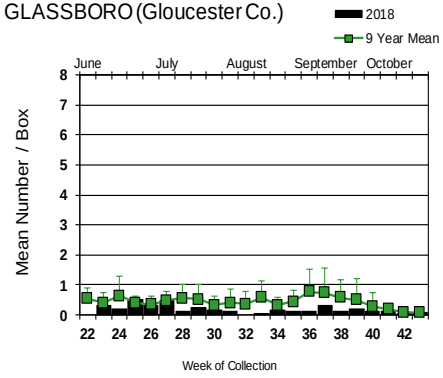


Inland









As has been the case for the past several years, populations of *Culiseta melanura* have been well below averages calculated since the sites have been monitored (some, like Dennisville, since 1977). We still detect EEE activity despite low populations, such as at Centerton (or in the past at Green Bank). These sites with lower populations tend to be opening up in the canopy, but as long as they remain active with regard to virus, they will be included in our monitoring sites. This year, as with the past several years, we first picked up activity on the western side of the state, then found virus in the eastern side.

= Positive pool(s) detected (red = melanura, purple = other species).

EEE in US (2018 cumulative cases): (Black or Red = previous + new reported cases occurring)

- **equine: AL(3) FL(51/2 mule & donkey) GA(6) IN(2) LA(6) MI(4) NC(7) NJ(5) NY(2) SC(1) VA(2) WI(2) Ontario Canada(10)**
- **mosquito pools: CT(6) FL(3) GA(3) LA(1) MA(2) NC(1) NH(6) NJ(14) NY(25) RI(4)**
- **sentinel: FL(143/6 owl emus & 5 emu flocks, 2 emus) DE(8)**
- **human: FL(3) GA(1) MI(1)**

West Nile Virus Positive Organisms in US, 2018

West Nile in US (2017 cumulative cases): Single black values indicate no change from previous week. Black values / red values equals previous week/New totals.
Note: Data reported by all states should be considered provisional and subject to change. Sources for this table can be found here.

	Birds	Mosquito Pools	Sentinels	Horses*	Humans
Alabama					28
Alaska					1
Arizona	1	142	1	4	19
Arkansas				2	7
California	493/496	1,954/1,959	156	10/11	156/170
Colorado	Present	Present		5	92/93
Connecticut		393			22
Delaware	37/40		66/68	3/5	8/9
DC	1	21		2	14
Florida	5	28	544/580	5/6	17/21
Georgia		Present			29
Hawaii					
Idaho		39		4	15
Illinois	34	3,012		11	137/139
Indiana		688		23	30
Iowa		102		13/14	95/100
Kansas					23
Kentucky		Present		2	12
Louisiana	98	1063		5	87
Maine		4		1	3*
Maryland(+DC)	1	30		6	41
Mass.		579		3	44
Michigan	187	154		3	101/103
Minnesota		Present		Present	39
Mississippi		111/116			44/47
Missouri	1	3		5	17

	Birds	Mosquito Pools	Sentinels	Horses*	Humans
Montana		9		42	45
Nebraska	1	122		2	234/235
Nevada		Present			8
New Hampshire	4	32			
New Jersey		1,327/1331		1	58
New Mexico					5
New York		1,496		20	82
North Carolina					6
North Dakota	12	102		4	200
Ohio		3,281		43/48	57/59
Oklahoma		21traps		1	17
Oregon	1	58		2	2
Pennsylvania	107	4,729		92	100
Rhode Island		10			
South Carolina			5	3	12
South Dakota		9counties			161/168
Tennessee	2	978/980			11
Texas	6	970/998		12	101/103
Utah		180		9	11
Vermont		157		1	
Virginia				1	47
Washington		49		2	3
West Virginia		24			
Wisconsin	55	83		3	19/21
Wyoming	3	17		15	4

* Can include other species (e.g., dogs, cows) reported positive.

Protocol: New Jersey Department of Health (NJDH Public Health Environmental and Agricultural Laboratories, PHEAL) and the Cape May County Department of Mosquito Control tests mosquito pools using RT-PCR Taqman techniques.

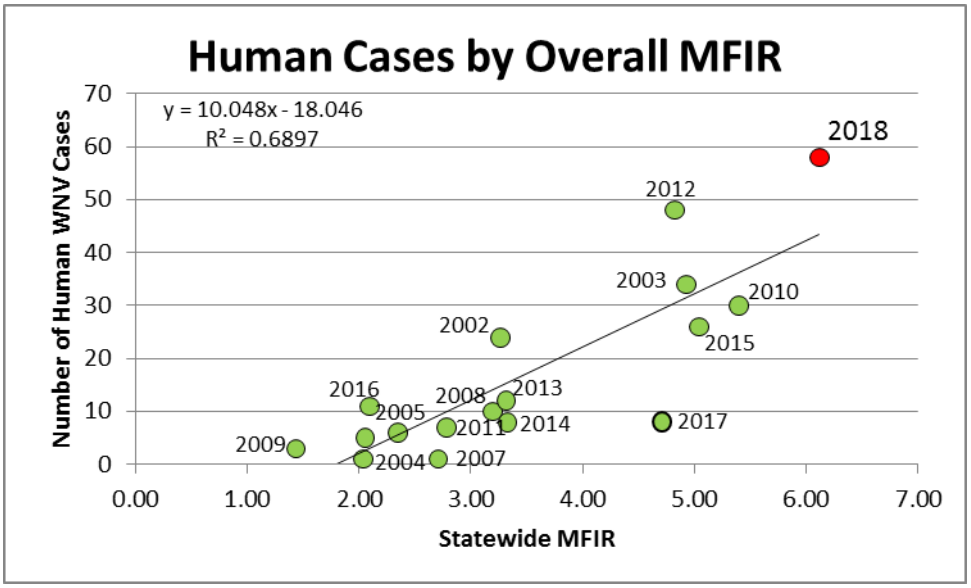
Mosquito Species Submitted and Tested for West Nile Virus through 16 November 2018

Species	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	1	11		
Aedes albopictus	1739	15048	34	2.259
Aedes atlanticus	30	185		
Aedes atropalpus	26	61		
Aedes canadensis canadensis	38	300		
Aedes cantator	10	112		
Aedes cinereus	1	18		
Aedes excrucians	1	2		
Aedes grossbecki	2	10		
Aedes infirmatus	5	9		
Aedes japonicus	848	4616	19	4.116
Aedes mitchellae	1	2		
Aedes sollicitans	31	372		
Aedes sticticus	5	53		
Aedes taeniorhynchus	20	382	1	2.618
Aedes thibaulti	1	10		
Aedes triseriatus	298	739	3	4.060
Aedes trivittatus	35	506	1	1.976
Aedes vexans	267	5620	2	0.356
Anopheles barberi	3	24		
Anopheles bradleyi	90	917		
Anopheles crucians	4	27	1	37.037
Anopheles punctipennis	104	402	1	2.488
Anopheles quadrimaculatus	202	2722	1	0.367
Anopheles walkeri	1	35		
Coquillettidia perturbans	120	2778	3	1.080
Culex erraticus	249	2031	6	2.954
Culex pipiens	1119	13567	32	2.359
Culex restuans	781	5064	9	1.777
Culex salinarius	435	3958	1	0.253
Culex spp.	3823	145394	1200	8.253
Culex territans	18	74		
Culiseta inornata	1	10		
Culiseta melanura	651	10512	15	1.427
Orthopodomyia signifera	4	5		
Psorophora ciliata	8	74		
Psorophora columbiae	34	246	1	4.065
Psorophora cyanescens	2	19		
Psorophora ferox	91	1533		
Psorophora howardii	2	14	1	71.429
Uranotaenia sapphirina	13	53		
Grand Total	**11114**	**217515**	**1331**	**6.119**

Remarks: To date, 11,114 pools of 217,515 mosquitoes from 40 species have been tested. A total of 1,331 positive WNV pools have been detected throughout the state. The bulk of positives were in the enzootic vector(s) *Culex* spp. First positive WNV pool detected has been revised from 7 June 2018 in Warren County to 5 June in Gloucester County, in *Culex pipiens*. Last year, the first positive *Culex* Mix pool was detected in Sussex County on 12 June and the first non-*Culex* positive was collected in *Aedes albopictus* on 14 July in Gloucester County. This year, the first non-*Culex* positive species was *Aedes japonicus*, also collected in Gloucester County on 7 JUNE, more than one month earlier. Last positive pools were *Culex* spp. collected on 17 October in Gloucester County. Positive non-*Culex* species continue to include *Aedes albopictus, Ae. japonicus, Ae. taeniorhynchus, Ae. triseriatus, Ae. trivittatus, Ae. vexans, Anopheles crucians, An. punctipennis, An. quadrimaculatus, Coquillettidia perturbans, Culex erraticus, Culiseta melanura, Psorophora columbiae* and *Ps. howardii*. The statewide MFIR rate for all mosquitoes has decreased to 6.119 from last week's 6.228.

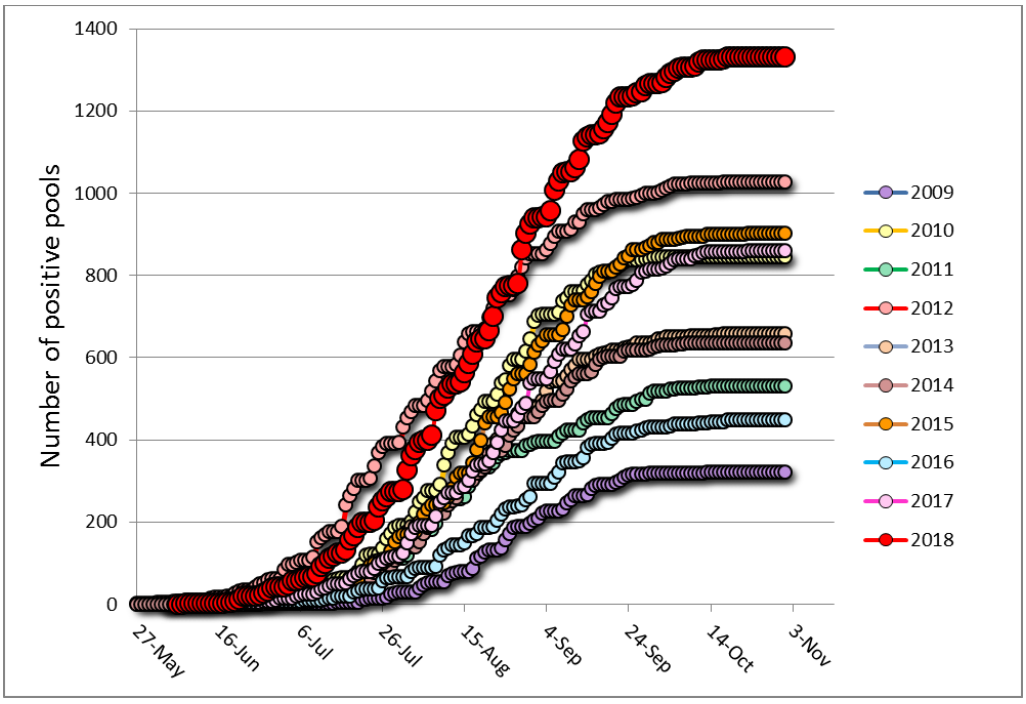
Humans, Horses and Wild Birds: Currently 58 human cases of WNV have been detected in the following counties: Atlantic 1, Bergen 10, Burlington 3, Camden 3, Cape May 2, Cumberland 2, Essex 1, Gloucester 1, Hudson 4, Hunterdon 3, Mercer 1 Middlesex 5, Monmouth 3, Morris 4, Ocean 2, Passaic 3, Somerset 4, Sussex 1, Union 1, and Warren 4.

The graph to the right shows the relationship between statewide overall endpoint MFIR and human cases since the beginning of the outbreak. This week, the estimate for 2018 continued to be above the trend line, consistent with higher than normal activity.



One WNV horse case has been reported, occurring in Burlington County. The 10 year old mare is currently being treated. For further information, see http://www.nj.gov/health/cd/statistics/arboviral-stats/.

Birds are no longer routinely tested in New Jersey.



Above is a graph showing cumulative number of positive pools for the previous 9 years, inclusive of the most active (2012) and least active (2009) years. The red series represents this year and currently has well surpassed other recent years in activity.

WNV Results by County through 16 November 2018.

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**335**	**7996**	**24**	**3.002**
	Aedes albopictus	55	1047	1	0.955
	Aedes atlanticus	4	85		
	Aedes canadensis canadensis	6	65		
	Aedes japonicus	7	67		
	Aedes sollicitans	5	105		
	Aedes sticticus	1	35		
	Aedes taeniorhynchus	5	271		
	Aedes triseriatus	1	2		
	Aedes vexans	25	580	1	1.724
	Anopheles bradleyi	6	242		
	Coquillettidia perturbans	13	320	1	3.125
	Culex erraticus	26	230	1	4.348
	Culex pipiens	22	766	6	7.833
	Culex restuans	1	23		
	Culex salinarius	1	24		
	Culex spp.	60	1593	12	7.533
	Culex territans	1	3		
	Culiseta melanura	76	1644	2	1.217
	Psorophora ciliata	1	1		
	Psorophora columbiae	1	1		
	Psorophora ferox	18	892		
Bergen		**423**	**23284**	**161**	**6.915**
	Aedes albopictus	39	928	1	1.078
	Aedes japonicus	8	28	1	35.714
	Aedes sollicitans	3	146		
	Aedes trivittatus	2	29		
	Aedes vexans	24	1134		
	Anopheles bradleyi	1	4		
	Anopheles punctipennis	1	5		
	Anopheles quadrimaculatus	1	3		
	Coquillettidia perturbans	4	50		
	Culex restuans	1	1		
	Culex salinarius	9	270		
	Culex spp.	318	20576	158	7.679
	Culiseta melanura	9	26		
	Psorophora ferox	2	82		
	Psorophora howardii	1	2	1	500.00
Burlington		**347**	**10014**	**35**	**3.495**
	Aedes albopictus	25	397		
	Aedes atlanticus	4	59		
	Aedes canadensis canadensis	4	59		
	Aedes infirmatus	3	6		
	Aedes japonicus	17	163	2	12.270
	Aedes mitchellae	1	2		
	Aedes taeniorhynchus	2	43		
	Aedes triseriatus	4	27		
	Aedes vexans	13	501		
	Anopheles bradleyi	5	142		
	Anopheles crucians	2	24		

	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	1	3		
	Coquillettidia perturbans	2	127		
	Culex erraticus	11	147		
	Culex pipiens	6	6		
	Culex salinarius	12	471		
	Culex spp.	129	4180	27	6.459
	Culiseta melanura	100	3627	6	1.654
	Psorophora ciliata	1	8		
	Psorophora columbiae	2	14		
	Psorophora ferox	1	1		
	Uranotaenia sapphirina	1	6		
Camden		**211**	**6569**	**40**	**6.089**
	Aedes albopictus	33	104	3	28.846
	Aedes excrucians	1	2		
	Aedes japonicus	31	144	1	6.944
	Aedes triseriatus	2	4		
	Anopheles punctipennis	3	4		
	Culex spp.	86	4117	34	8.258
	Culiseta melanura	54	2192	2	0.912
	Psorophora ferox	1	2		
Cape May		**4038**	**22966**	**20**	**0.871**
	Aedes albopictus	767	1680		
	Aedes atlanticus	18	33		
	Aedes atropalpus	26	61		
	Aedes canadensis canadensis	8	12		
	Aedes cantator	4	4		
	Aedes infirmatus	2	3		
	Aedes japonicus	293	612		
	Aedes sollicitans	9	9		
	Aedes sticticus	1	1		
	Aedes taeniorhynchus	6	7		
	Aedes triseriatus	149	268		
	Aedes vexans	35	55		
	Anopheles barberi	1	16		
	Anopheles bradleyi	72	360		
	Anopheles punctipennis	11	20		
	Anopheles quadrimaculatus	157	2311		
	Coquillettidia perturbans	10	33		
	Culex erraticus	88	474		
	Culex pipiens	1015	11689	17	1.454
	Culex restuans	662	2927	3	1.025
	Culex salinarius	363	1241		
	Culex spp.	53	166		
	Culex territans	16	70		
	Culiseta melanura	243	847		
	Orthopodomyia signifera	2	3		
	Psorophora columbiae	7	12		
	Psorophora ferox	12	17		
	Uranotaenia sapphirina	8	35		
Cumberland		**344**	**4434**	**10**	**2.255**
	Aedes albopictus	78	1352	3	2.219
	Aedes japonicus	16	51		

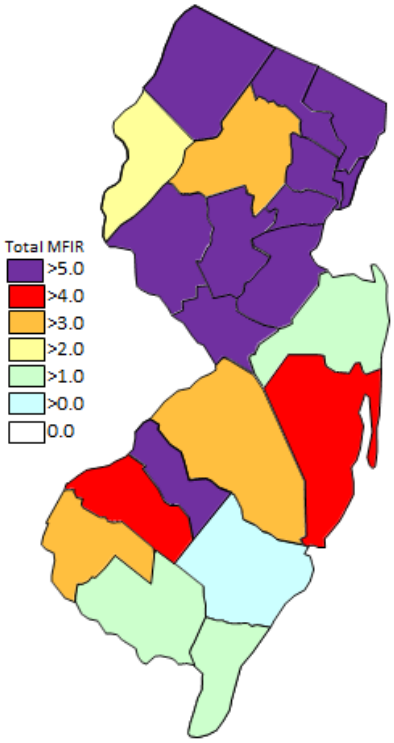
	Aedes sollicitans	4	21		
	Aedes sticticus	1	1		
	Aedes triseriatus	8	16		
	Aedes trivittatus	4	12		
	Aedes vexans	42	776		
	Anopheles bradleyi	1	24		
	Anopheles punctipennis	13	59		
	Anopheles quadrimaculatus	20	334		
	Coquillettidia perturbans	6	6		
	Culex erraticus	32	790	2	2.532
	Culex pipiens	7	43		
	Culex restuans	2	2		
	Culex salinarius	9	65		
	Culex spp.	54	484	3	6.198
	Culiseta melanura	27	192	2	10.417
	Psorophora ciliata	1	1		
	Psorophora columbiae	9	89		
	Psorophora ferox	8	107		
	Uranotaenia sapphirina	2	9		
Essex		**174**	**939**	**14**	**14.909**
	Aedes albopictus	48	174		
	Aedes japonicus	28	54	3	55.556
	Aedes trivittatus	19	36	1	27.778
	Aedes vexans	3	4		
	Anopheles quadrimaculatus	3	3	1	333.333
	Culex spp.	73	668	9	13.473
Gloucester		**615**	**15702**	**121**	**7.706**
	Aedes albopictus	135	992	6	6.048
	Aedes canadensis canadensis	1	4		
	Aedes japonicus	99	951	9	9.464
	Aedes triseriatus	17	73		
	Aedes vexans	8	64		
	Anopheles barberi	1	7		
	Anopheles punctipennis	22	127	1	7.874
	Anopheles quadrimaculatus	5	13		
	Coquillettidia perturbans	7	36		
	Culex pipiens	28	394	5	12.690
	Culex restuans	1	3		
	Culex spp.	244	12211	100	8.189
	Culiseta melanura	32	605		
	Psorophora ciliata	1	1		
	Psorophora columbiae	1	8		
	Psorophora ferox	13	213		
Hudson		**220**	**9701**	**68**	**7.010**
	Aedes albopictus	13	178		
	Culex spp.	207	9523	68	7.141
Hunterdon		**397**	**17051**	**159**	**9.325**
	Culex spp.	397	17051	159	9.325
Mercer		**350**	**5917**	**43**	**7.267**
	Aedes albopictus	86	944	3	3.178

	Aedes canadensis canadensis	1	6		
	Aedes japonicus	74	328	1	3.049
	Aedes triseriatus	2	7		
	Aedes trivittatus	1	1		
	Aedes vexans	25	351	1	2.849
	Coquillettidia perturbans	2	37	1	27.027
	Culex erraticus	8	20		
	Culex pipiens	6	60	1	16.667
	Culex restuans	49	1214	6	4.942
	Culex spp.	95	2948	30	10.176
	Culiseta melanura	1	1		
Middlesex		**248**	**6627**	**56**	**8.450**
	Aedes albopictus	14	148		
	Aedes japonicus	1	64		
	Aedes vexans	3	105		
	Anopheles punctipennis	1	1		
	Coquillettidia perturbans	3	9		
	Culex spp.	225	6290	56	8.903
	Culiseta inornata	1	10		
Monmouth		**585**	**11414**	**63**	**5.520**
	Aedes albopictus	128	3454	6	1.737
	Aedes atlanticus	2	6		
	Aedes canadensis canadensis	15	110		
	Aedes cantator	5	50		
	Aedes grossbecki	2	10		
	Aedes japonicus	26	80		
	Aedes sollicitans	5	37		
	Aedes taeniorhynchus	4	7		
	Aedes triseriatus	21	137		
	Aedes trivittatus	7	56		
	Aedes vexans	32	160		
	Anopheles barberi	1	1		
	Anopheles bradleyi	1	1		
	Anopheles crucians	2	3	1	333.333
	Anopheles punctipennis	35	102		
	Anopheles quadrimaculatus	3	4		
	Coquillettidia perturbans	4	5		
	Culex erraticus	14	54	2	37.037
	Culex restuans	5	8		
	Culex salinarius	9	263		
	Culex spp.	210	6206	52	8.379
	Culex territans	1	1		
	Culiseta melanura	25	539	1	1.855
	Orthopodomyia signifera	2	2		
	Psorophora ciliata	1	1		
	Psorophora columbiae	7	61	1	16.393
	Psorophora ferox	18	56		
Morris		**473**	**17101**	**166**	**9.707**
	Aedes albopictus	17	104		
	Aedes japonicus	22	185		
	Aedes sollicitans	1	1		
	Aedes vexans	7	190		
	Anopheles punctipennis	2	7		

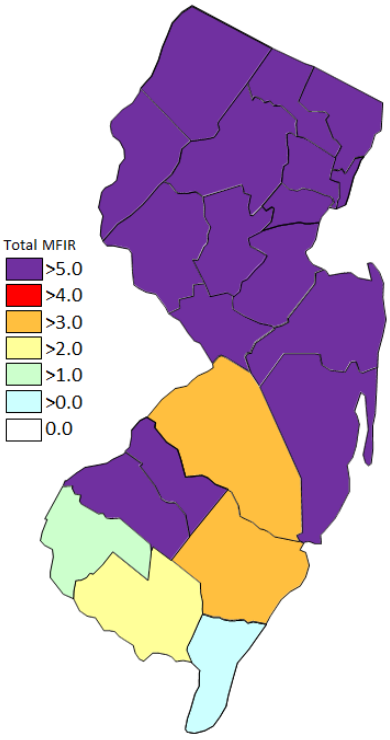
	Anopheles quadrimaculatus	1	3		
	Coquillettidia perturbans	6	300		
	Culex spp	412	16273	166	10.201
	Culiseta melanura	1	1		
	Psorophora ferox	4	37		
Ocean		**382**	**3272**	**26**	**7.946**
	Aedes albopictus	109	899	5	5.562
	Aedes cantator	1	58		
	Aedes japonicus	44	103		
	Aedes taeniorhynchus	2	50		
	Aedes triseriatus	29	72	2	27.778
	Aedes vexans	6	51		
	Anopheles bradleyi	2	139		
	Anopheles punctipennis	2	2		
	Anopheles quadrimaculatus	3	6		
	Coquillettidia perturbans	21	168	1	5.952
	Culex erraticus	15	32		
	Culex pipiens	1	1		
	Culex restuans	2	2		
	Culex salinarius	4	86		
	Culex spp.	99	1400	17	12.143
	Culiseta melanura	38	193	1	5.181
	Psorophora ferox	4	10		
Passaic		**260**	**2097**	**16**	**7.630**
	Aedes abserratus	1	11		
	Aedes albopictus	37	168		
	Aedes japonicus	65	370	1	2.703
	Aedes thibaulti	1	10		
	Aedes triseriatus	4	14		
	Aedes vexans	1	34		
	Coquillettidia perturbans	5	40		
	Culex erraticus	12	21		
	Culex pipiens	11	202		
	Culex restuans	9	95		
	Culex spp.	108	1109	15	13.526
	Culiseta melanura	4	4		
	Psorophora cyanescens	2	19		
Salem		**418**	**7498**	**9**	**1.200**
	Aedes albopictus	76	923		
	Aedes atlanticus	2	2		
	Aedes canadensis canadensis	1	1		
	Aedes japonicus	36	160		
	Aedes sollicitans	2	24		
	Aedes taeniorhynchus	1	4	1	250.00
	Aedes triseriatus	30	40		
	Aedes trivittatus	3	4		
	Aedes vexans	6	188		
	Anopheles bradleyi	2	5		
	Anopheles punctipennis	4	10		
	Anopheles quadrimaculatus	7	39		
	Coquillettidia perturbans	20	550		
	Culex erraticus	43	263	1	3.802
	Culex pipiens	11	14		

	Culex restuans	7	18		
	Culex salinarius	12	760	1	1.316
	Culex spp.	113	3925	5	1.274
	Culiseta melanura	29	508	1	1.969
	Psorophora ciliate	1	6		
	Psorophora columbiae	4	13		
	Psorophora ferox	5	26		
	Psorophora howardii	1	12		
	Uranotaenia sapphirina	2	3		
Somerset		**289**	**8811**	**84**	**9.534**
	Aedes albopictus	5	17		
	Aedes canadensis canadensis	1	12		
	Aedes japonicus	15	159		
	Aedes triseriatus	5	9		
	Aedes trivittatus	2	2		
	Anopheles punctipennis	3	5		
	Culex spp.	257	8606	84	9.761
	Psorophora ferox	1	1		
Sussex		**362**	**10531**	**56**	**5.318**
	Aedes albopictus	3	5		
	Aedes canadensis canadensis	1	31		
	Aedes japonicus	14	255		
	Aedes triseriatus	3	27		
	Aedes trivittatus	2	129		
	Aedes vexans	19	1033		
	Anopheles punctipennis	1	24		
	Coquillettidia perturbans	15	1008		
	Culex pipiens	12	392	3	7.653
	Culex restuans	41	770		
	Culex salinarius	13	670		
	Culex spp.	228	6042	53	8.772
	Culiseta melanura	9	70		
	Psorophora ferox	1	75		
Union		**196**	**10534**	**78**	**7.405**
	Aedes albopictus	37	822	5	6.083
	Aedes sollicitans	2	29		
	Culex salinarius	3	108		
	Culex spp	154	9575	73	7.624
Warren		**447**	**15057**	**82**	**5.446**
	Aedes albopictus	34	712	1	1.404
	Aedes cinereus	1	18		
	Aedes japonicus	52	842	1	1.188
	Aedes sticticus	2	16		
	Aedes triseriatus	4	7		
	Aedes trivittatus	14	273	1	3.663
	Aedes vexans	18	394		
	Anopheles punctipennis	5	35		
	Anopheles quadrimaculatus	1	3		
	Anopheles walkeri	1	35		
	Coquillettidia perturbans	2	89		
	Culex restuans	1	1		
	Culex spp.	301	12451	79	6.345

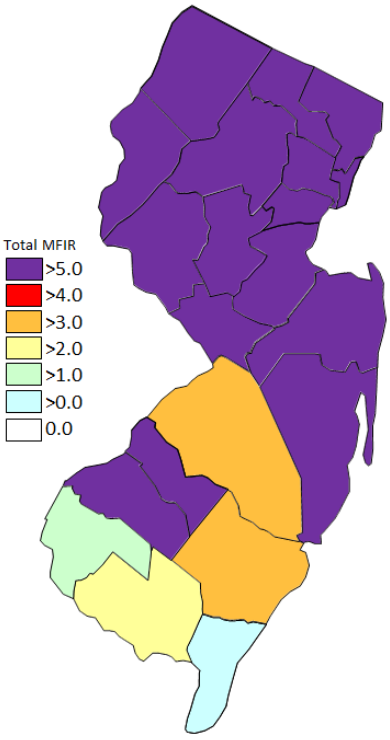
	Culiseta melanura	3	63		
	Psorophora ciliata	2	56		
	Psorophora columbiae	3	48		
	Psorophora ferox	3	14		
Grand Total		**11114**	**217515**	**1331**	**6.119**



Cumulative WNV activity in 2017.



WNV activity to 16 November 2018.



WNV activity last week, 2018

Saint Louis Encephalitis (SLE) to 16 November 2018.

New Jersey will be primarily testing for SLE this year only when adjacent states show human activity (Cape May tests mosquitoes in the Cape May lab independently). SLE has had previous activity in New Jersey, most notably in 1964 and 1975 (CDC's SLE website), the latter prompting the surveillance reporting by Rutgers. SLE is a flavivirus and has a similar transmission pattern to West Nile, with *Culex* species as the predominant vectors.

No pools of SLE have tested positive for 2018. No human cases have been reported.

County	Species	Pools	Mosquitoes	Positives	MFIR
Burlington		**36**	**1987**		
	Culex spp	36	1987		
Cape May		**987**	**11321**		
	Culex pipiens	942	11176		
	Culex spp.	45	145		
Grand Total		**1023**	**13308**		

La Crosse Encephalitis (LAC) to 16 November 2018.

New Jersey will be primarily testing for LAC this year only when adjacent states show human activity (Cape May tests mosquitoes in the Cape May lab independently). New Jersey has had 3 cases of this encephalitic disease since 1964 (see CDC's LAC website). The mortality is low but like other encephalitides, LAC can have both personal (lasting neurological sequelae) and economic impacts. LAC is a bunyavirus with a transmission cycle involving mosquitoes such as *Aedes triseriatus* and small mammals such as squirrels and chipmunks. LAC can not only infect *Aedes albopictus* but transovarial transmission was also demonstrated.
(Tesh and Gubler 1975 Laboratory studies of transovarial transmission of La Crosse and other arboviruses by *Aedes albopictus* and *Culex fatigans.* American Journal of Tropical Medicine and Hygiene 24(5):876-880).

No pools of LAC have been tested yet for 2018. No human cases have been reported.

County	Species	Pools	Mosquitoes	Positives	MFIR
Burlington		**16**	**226**		
	Aedes albopictus	5	79		
	Aedes japonicus	7	120		
	Aedes triseriatus	4	27		
Ocean		**4**	**9**		
	Aedes albopictus	2	3		
	Aedes japonicus	1	1		
	Aedes triseriatus	1	5		
Salem		**3**	**4**		
	Aedes triseriatus	3	4		
Sussex		**3**	**27**		
	Aedes triseriatus	3	27		
Grand Total		**26**	**266**		

Dengue (DENV) to 16 November 2018.

New Jersey will be selectively testing for DENV (including serotypes) this year. Dengue has not had a history of local transmission here in New Jersey, but each year, travelers can bring virus back from areas in the world with virus activity. This is significant as humans are NOT dead-end hosts and thus there is the potential for local transmission (i.e., New Jersey mosquitoes biting a sick person and then biting and transmitting the disease to someone else) to be established. DENV is a flavivirus but unlike WNV, *Aedes* mosquitoes are predominant vectors. In New Jersey, *Aedes albopictus* is a candidate for local transmission. There are 4 serotypes tested for Dengue.

Note Same pools of *Ae. albopictus* are tested for the four serotypes of Dengue as well as Chikungunya.

No pools of Dengue have been tested yet in 2018. There are currently 14 travel-related human cases in NJ.

County	Species	DENV1		DENV2		DENV3		DENV4		Pos.	MFIR
		Pool	Mos.	Pool	Mos.	Pool	Mos.	Pool	Mos.		
Atlantic		**55**	**1047**	**55**	**1047**	**55**	**1047**	**55**	**1047**		
	Aedes albopictus	55	1047	55	1047	55	1047	55	1047		
Bergen		**1**	**14**	**1**	**14**	**1**	**14**	**1**	**14**		

	Aedes albopictus	1	14	1	14	1	14	1	14		
Gloucester		**7**	**20**	**7**	**20**	**7**	**20**	**7**	**20**		
	Aedes albopictus	5	18	5	18	5	18	5	18		
	Aedes japonicus	2	2	2	2	2	2	2	2		
Middlesex		**2**	**12**	**2**	**12**	**2**	**12**	**2**	**12**		
	Aedes albopictus	2	12	2	12	2	12	2	12		
Monmouth		**2**	**67**	**2**	**67**	**2**	**67**	**2**	**67**		
	Aedes albopictus	2	67	2	67	2	67	2	67		
Morris		**1**	**12**	**1**	**12**	**1**	**12**	**1**	**12**		
	Aedes albopictus	1	12	1	12	1	12	1	12		
Ocean		**67**	**709**	**67**	**709**	**67**	**709**	**67**	**709**		
	Aedes albopictus	67	709	67	709	67	709	67	709		
Sussex		**3**	**5**	**3**	**5**	**3**	**5**	**3**	**5**		
	Aedes albopictus	3	5	3	5	3	5	3	5		
Grand Total		**138**	**1886**	**138**	**1886**	**138**	**1886**	**138**	**1886**		

Chikungunya (CHIK) to 16 November 2018.

New Jersey will be selectively testing for CHIK this year. Chikungunya is similar in symptoms to Dengue, a "breakbone" fever and has a low mortality rate. But this virus has had recent worldwide activity, and in the past year has come to the Western Hemisphere. As with Dengue, transmission can occur when a mosquito bites an infected human, then bites an uninfected human who subsequently becomes ill. CHIK is an alphavirus with *Aedes* mosquitoes as potential vectors. In New Jersey, *Aedes albopictus* is the mosquito of interest.

No pools of CHIK have been tested yet in 2018. There are currently 9 travel-related human cases in NJ.

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**55**	**1047**		
	Aedes albopictus	55	1047		
Bergen		**1**	**14**		
	Aedes albopictus	1	14		
Cape May		**1**	**14**		
	Aedes albopictus	1	14		
Gloucester		**7**	**20**		
	Aedes albopictus	5	18		
	Aedes japonicus	2	2		
Middlesex		**2**	**12**		
	Aedes albopictus	2	12		
Monmouth		**2**	**67**		
	Aedes albopictus	2	67		
Ocean		**67**	**709**		
	Aedes albopictus	67	709		
Somerset		**1**	**1**		
	Aedes albopictus	1	1		
Sussex		**3**	**5**		
	Aedes albopictus	3	5		
Grand Total		**138**	**1875**		

Zika (ZIKV) to 16 November 2018.

New Jersey will be selectively testing for ZIKV this year. Zika is an emerging arboviral threat with significant health consequences for fetuses and recent activity in the Western Hemisphere. Humans are potential hosts that can transmit through sexual activity. ZIKV is a flavivirus with *Aedes* mosquitoes as potential vectors. In New Jersey, *Aedes albopictus* is the mosquito of interest.

No pools have tested positive in 2018. There are currently 7 travel-related human cases in NJ.

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**55**	**1047**		
	Aedes albopictus	55	1047		
Bergen		**1**	**14**		
	Aedes albopictus	1	14		
Cape May		**665**	**1412**		
	Aedes albopictus	665	1412		
Gloucester		**7**	**20**		
	Aedes albopictus	5	18		
	Aedes japonicus	2	2		
Middlesex		**2**	**12**		
	Aedes albopictus	2	12		
Monmouth		**2**	**67**		
	Aedes albopictus	2	67		
Ocean		**67**	**709**		
	Aedes albopictus	67	709		
Somerset		**1**	**1**		
	Anopheles punctipennis	1	1		
Sussex		**3**	**5**		
	Aedes albopictus	3	5		
Grand Total		**803**	**3287**		