



**Rhode Island Department of Health
Division of Infectious Disease Epidemiology
Arbovirus Surveillance: Epidemiologic Report, 2012**

Purpose: To monitor the epidemiology, incidence and geographic distribution of WNV and other arboviruses in Rhode Island for early detection and prevention of any human transmission.

Report at a glance:

- All laboratory confirmed human case/s and positive mosquito/animal pools/specimens have been described over a period of one year.
- Four confirmed human case of West Nile Virus (2 neuro-invasive, 2 non neuro-invasive) were reported in 2012. There was one confirmed case of neuro-invasive WNV in a human in 2011.
- In 2012, 2,234 mosquito pools were tested for the presence of arboviruses, of which sixteen tested positive (0.7%). Of the sixteen positive pools, six tested positive for Eastern Equine Encephalitis, five tested positive for WNV and 5 tested positive for Highlands J Virus. In 2011, there was a total of three positive pools for arboviruses (WNV – 2, Highlands J Virus – 1).
- Pools were collected from June 11th through October 9th. The first positive pool for the season (WNV, Culex species) was collected on July 9, 2012. The last positive pool of the season (Highlands J Virus, Culex species) was collected on October 9, 2012. This year marked the earliest that WNV (July 9th) or EEE (August 6th) had been detected in the past 12 years.
- Ochlerotetus species (Oc. sp) was the type of mosquito collected in maximum number of pools (27.7% of all pools).
- Culiseta melanura had the highest positivity rate (4.8%) for arboviral transmission followed by Culex species (1.6%).
- The highest number of pools (11.8 % of total pools) were collected in Westerly; whereas the highest positivity rate of pools was noted in North Kingstown.
- No transmission was detected in the animal population.

Figures and Tables

Figure 1: Mosquito Pools by Type of Mosquito and Month

Between June 11th, 2012 and October 9th, 2012, The Rhode Island Department of Environmental Management submitted a total of 2,234 mosquito pools comprising of 22,370 individual mosquitoes to the Rhode Island State Laboratory where they were tested for WNV, EEE, Highland's J Virus and Jamestown Canyon Virus. The highest arboviral positivity was found in September (1.5%), followed by August (0.9%), October (0.8%) and July (0.3%).

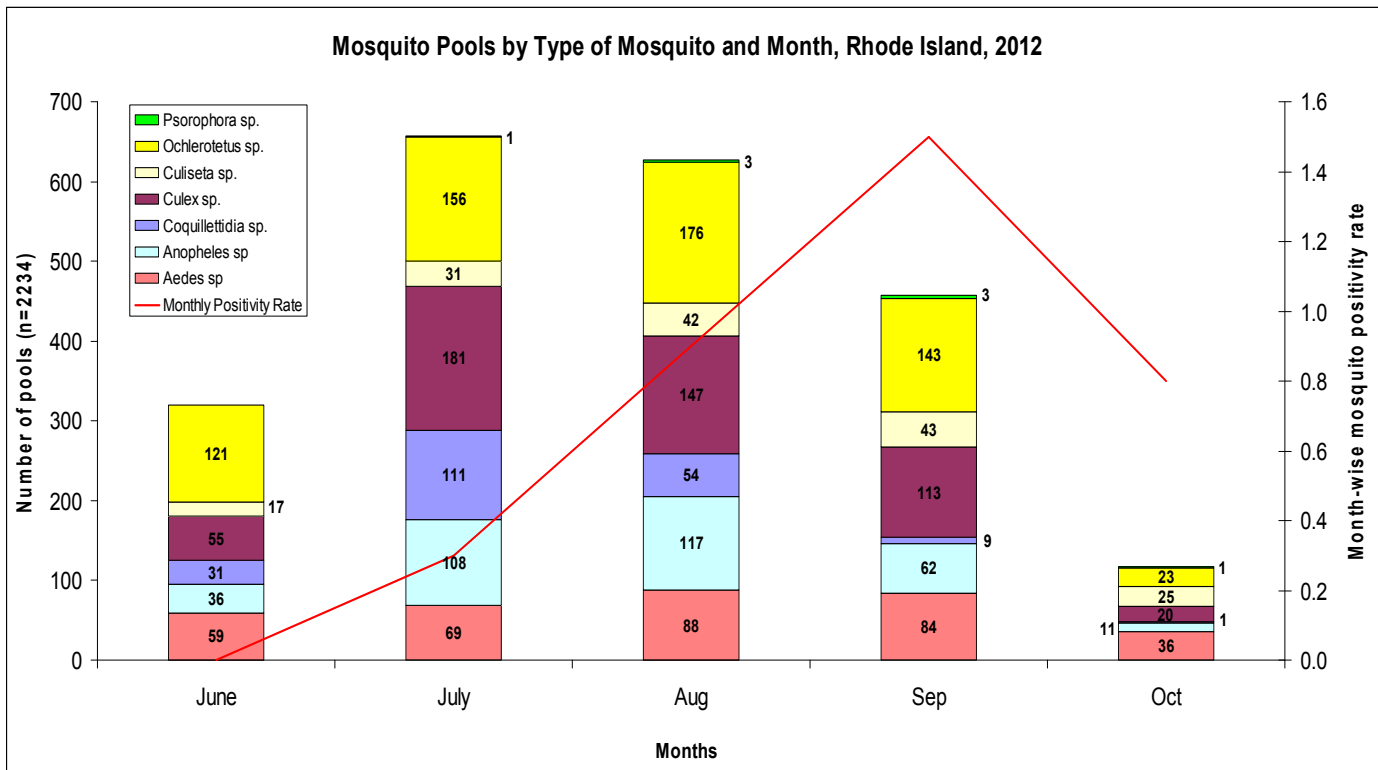
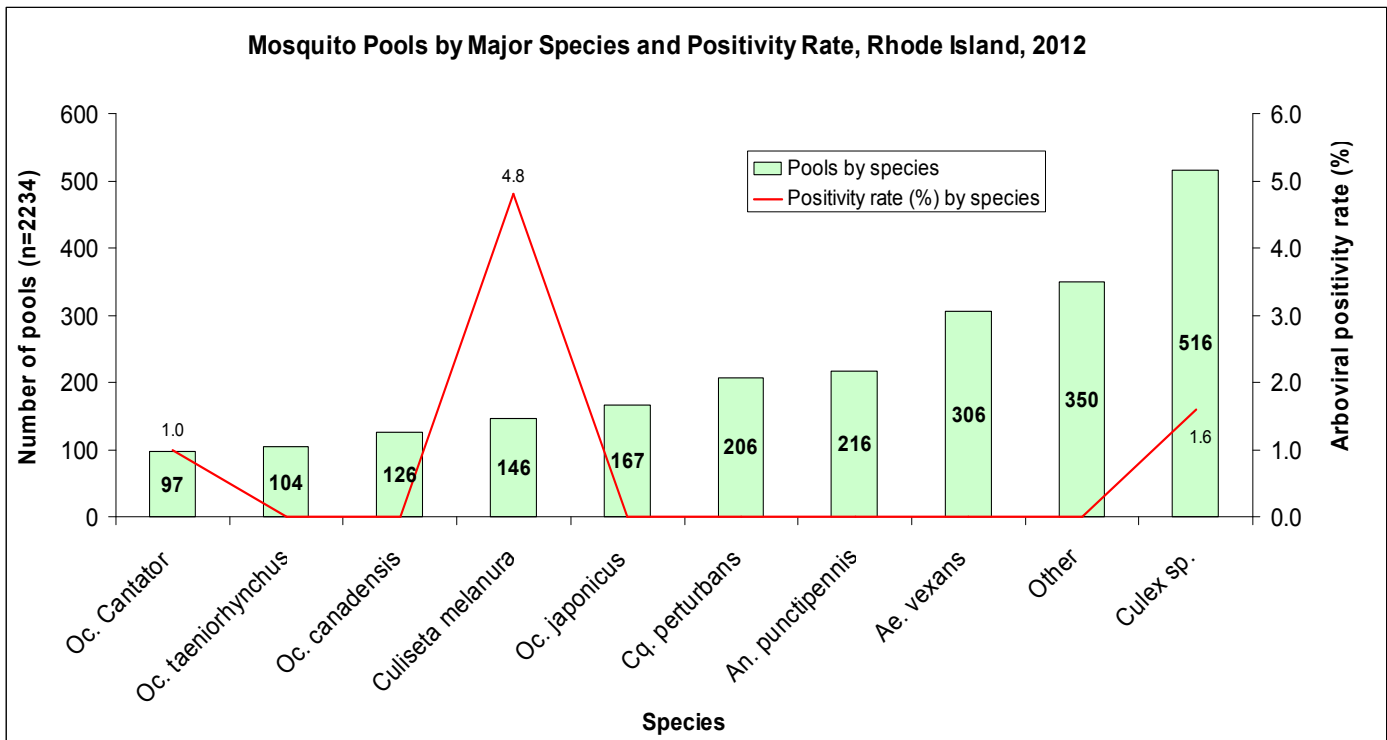


Figure 2: Mosquito Pools by Major Species of Mosquito and Positivity Rate

Of the 2,234 mosquito pools tested in 2012, sixteen (0.7%) tested positive for EEE, WNV or Highlands J Virus. The highest positivity rate was noted in *Culiseta melanura* (4.8%, 7 of 146 pools testing positive) followed by *Culex* sp. (1.6%, 8 of 516 pools testing positive) and *Oc. Cantator* (1.0%, 1 of 97 pools testing positive). Species included under “other” in the graph below are: *Ae. albopictus*, *Ae. cinereus*, *An. barberi*, *An. quadrimaculatus*, *An. walkeri*, *Culiseta inornata*, *Culiseta morsitans*, *Oc. abserratus*, *Oc. aurifer*, *Oc. dorsalis*, *Oc. excrucians*, *Oc. fitshii*, *Oc. hendersoni*, *Oc. intrudens*, *Oc. provocans*, *Oc. punctor*, *Oc. sollicitans*, *Oc. sticticus*, *Oc. stimulans*, *Oc. triseriatus*, *Oc. trivittatus*, *Or. signifera*, *Ps. ciliata*, *Ps. ferox* and *Ur. sapphirina*.



[spp/sp. – species; Ae – Aedes; Cq – Coquillettidia; Oc – Ochlerotetus; An - Anopheles]

Figure 3

Arboviral Surveillance: Mosquito Pool Collection by Town, Rhode Island, 2012

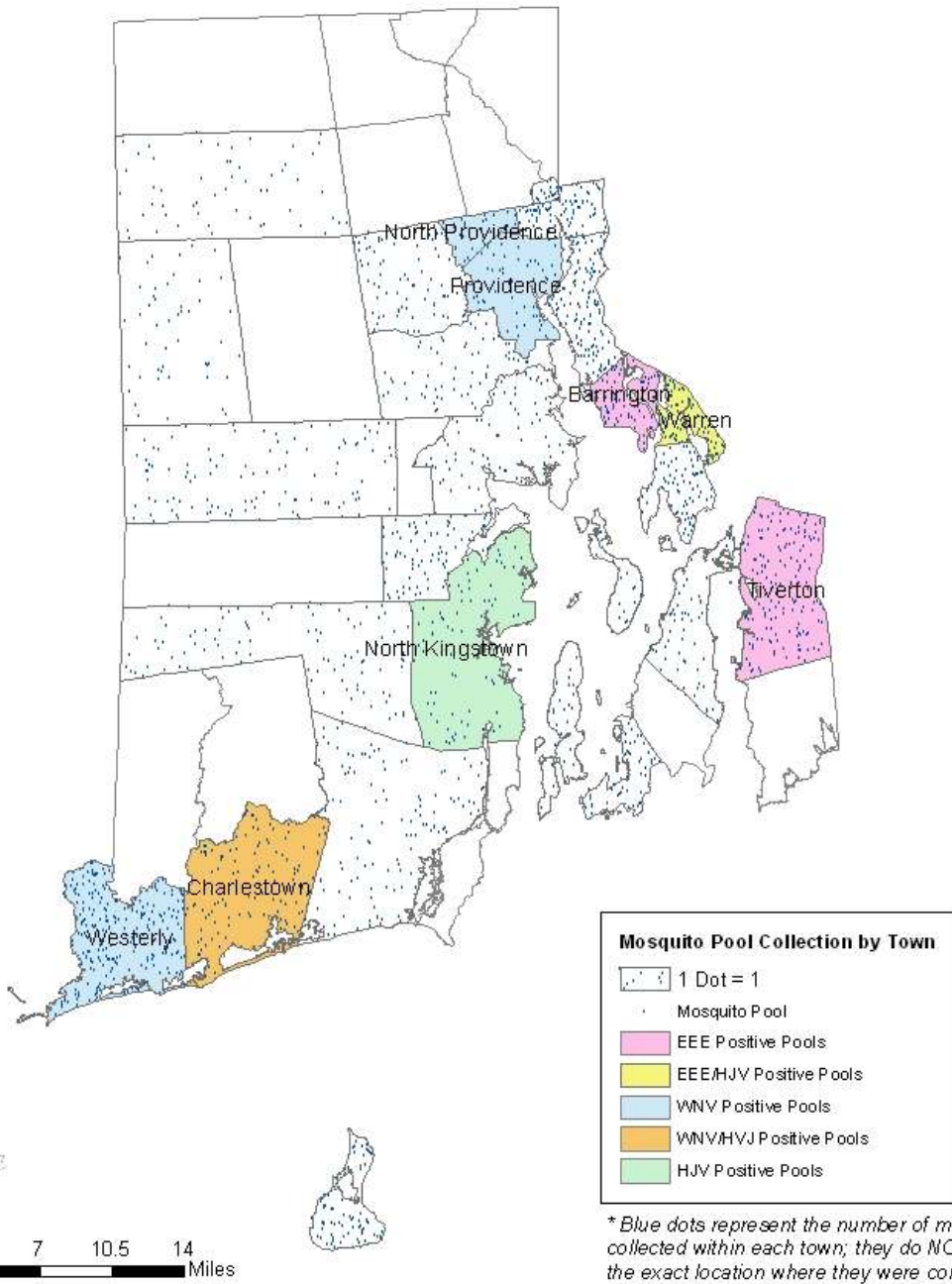
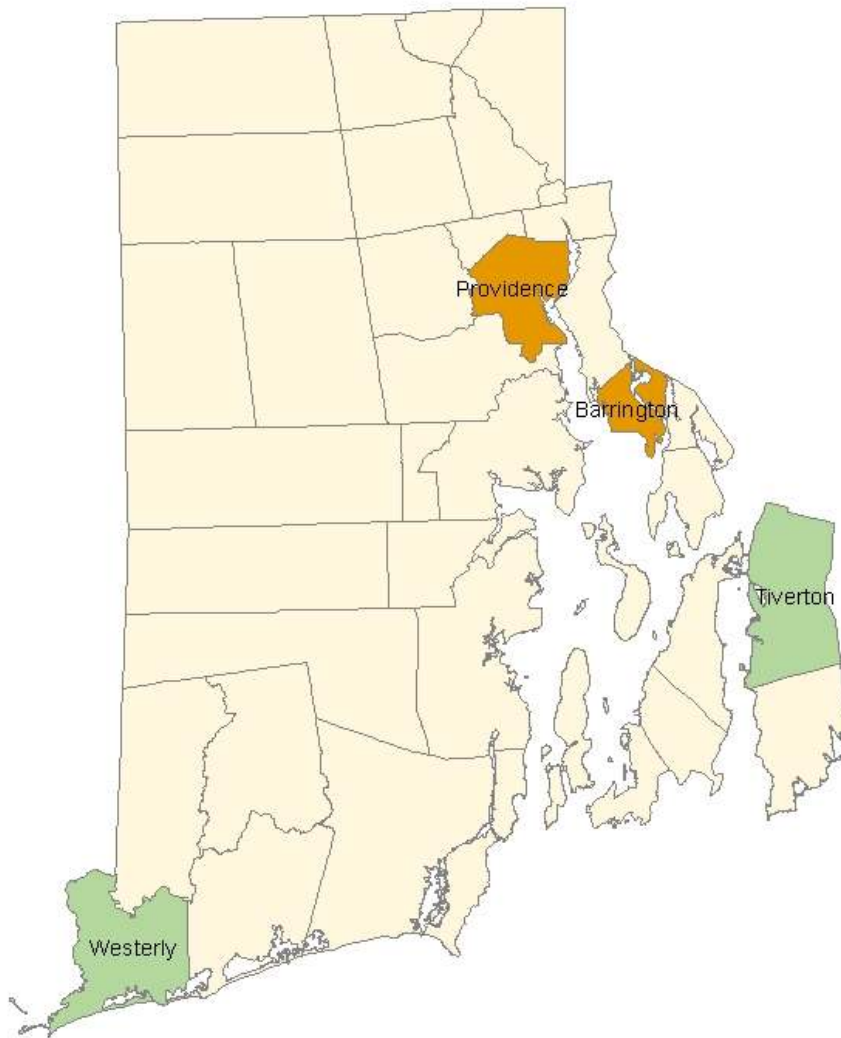


Figure 4

Arboviral Surveillance: Human Cases by Town, Rhode Island, 2012



0 1.75 3.5 7 10.5 14 Miles



Arboviral Transmission: Human Cases by Town

- West Nile Virus, Neuroinvasive (2 cases)
- West Nile Virus, Non-Neuroinvasive (2 cases)
- No Human Cases

Table 1: Mosquito Surveillance: Pools by Towns, RI, 2012*

Town	Total Pools	Percentage	Positive Pools	Positivity Rate by Town
Westerly	264	11.8%	2	0.8%
Tiverton	174	7.8%	4	2.3%
East Providence	136	6.1%	0	0.0%
Charlestown	122	5.5%	2	1.6%
South Kingstown	121	5.4%	0	0.0%
Coventry	110	4.9%	0	0.0%
Exeter	104	4.7%	0	0.0%
Pawtucket	89	4.0%	0	0.0%
Portsmouth	89	4.0%	0	0.0%
North Kingstown	87	3.9%	3	3.4%
New Shoreham	86	3.8%	0	0.0%
Warwick	84	3.8%	0	0.0%
Barrington	80	3.6%	1	1.3%
East Greenwich	78	3.5%	0	0.0%
Johnston	79	3.5%	0	0.0%
Warren	79	3.5%	2	2.5%
Bristol	77	3.4%	0	0.0%
Cranston	64	2.9%	0	0.0%
Providence	61	2.7%	1	1.6%
Newport	57	2.6%	0	0.0%
Glocester	56	2.5%	0	0.0%
Foster	48	2.1%	0	0.0%
Jamestown	33	1.5%	0	0.0%
North Providence	34	1.5%	0	0.0%
Central Falls	22	1.0%	0	0.0%
Total	2,234	100%	16	0.7%

* Towns without any mosquito pools collected have been excluded from the table.

Table 2: Mosquito Surveillance: Summary Data, RI, 2001-2012

Year	Number of pools tested	Number of positive counties	Total number of positive pools	Number of WNV positive pools	Earliest positive date for WNV	Number of EEE positive pools	Earliest positive date for EEE
2001	1856	3	14	14	7/16/2001	0	NA
2002	1417	2	4	4	8/28/2002	0	NA
2003	2383	4	27	7	8/21/2003	17	9/10/2003
2004	3062	2	7	0	NA	7	7/19/2004
2005	1466	2	2	1	9/19/2005	0	NA
2006	1382	4	19	10	8/8/2006	3	9/17/2006
2007	1048	2	5	5	8/20/2007	0	NA
2008	1207	2	10	10	8/26/2009	0	NA
2009	1138	2	14	3	9/8/2009	3	8/24/2009
2010	1621	3	9	2	8/30/2010	2	8/23/2010
2011	1690	3	3	2	8/22/2011	0	NA
2012	2234	4	16	5	7/9/2012	6	08/06/2012

Table 3: Human Cases by Age Group and City, Rhode Island, 2012

Case No.	Date of Onset	City	Classification	Age	Sex
1	8/25/2012	Tiverton	WNV Fever	51-60	Male
2	9/8/2012	Providence	WNV Meningitis	21-30	Male
3	9/13/2012	Barrington	WNV Meningitis	61-70	Female
4	9/15/2012	Westerly	WNV Fever	61-70	Male

*For questions/comments on data/methods, please contact Michael Gosciminski at 401-222-4757.
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