

Arbovirus Surveillance Summary, 2008
 Massachusetts Department of Public Health (MDPH)
 Arbovirus Surveillance Program

WEST NILE VIRUS (WNV)

Birds

In 2008, 2518 dead birds were reported to the MDPH Arbovirus Surveillance Program. Of the 139 that were tested for WNV, 63 were positive, including 42 crows and 20 blue jays (see table below). Positive birds were found in 55 towns in 11 counties.

Number of Birds Reported Dead, Tested and Positive for WNV by Species, 2008

Status	Species			Total
	Crow	Blue Jay	Other	
Reported	413	330	1775	2518
Tested	70	60	9*	139
WNV (+)	42	20	1**	63

* Includes Chicken (2), Cooper's hawk, Cowbird, Great Blue Heron, Great Horned Owl, Raven (2) and Red-tailed Hawk

** Red-tailed Hawk

Mosquito Samples

One-hundred and thirty-six of 4575 mosquito samples collected and tested were positive for WNV in Massachusetts in 2008. Positive samples were identified in 59 towns in 11 counties. Positive mosquito samples included 128 *Culex pipiens/restuans* complex; six *Culiseta melanura*; one *Culex salinarius*; and one *Ochlerotatus japonicus*. Mosquitoes in the *Culex* genus feed mainly on birds and occasionally on mammals, including humans. *Culex pipiens* and *Culex restuans* are primarily responsible for WNV transmission in birds in Massachusetts. *Culiseta melanura* feeds almost exclusively on birds and is the primary enzootic vector of EEE virus. *Ochlerotatus japonicus* feeds mainly on mammals and is a fierce human biter. This mosquito can be involved in the transmission of both WNV and EEE to humans in Massachusetts.

Horses

There were no cases of WNV infection identified in horses in Massachusetts in 2008.

Humans

One human case of WNV infection was identified in a Middlesex County resident (see table below). The case was in the age range of 25-44 years old, with an onset date of 9/23/2008. The case presented with neuroinvasive disease, was hospitalized, and subsequently recovered. Confirmatory laboratory testing on this case was performed at the CDC and results did not become available until January, 2009.

Specimens Tested and WNV Positive by Year, 2004-2008*

Species	2004		2005		2006		2007		2008	
	Tested	Positive								
Birds	86	8	303	57	313	57	223	43	139	63
Mosquito Pools	7200	15	8136	99	9344	43	7271	65	4575	136
Horses	19	0	12	0	16	0	8	0	14	0
Humans	440	0	544	6	649	3	392	6*	385	1

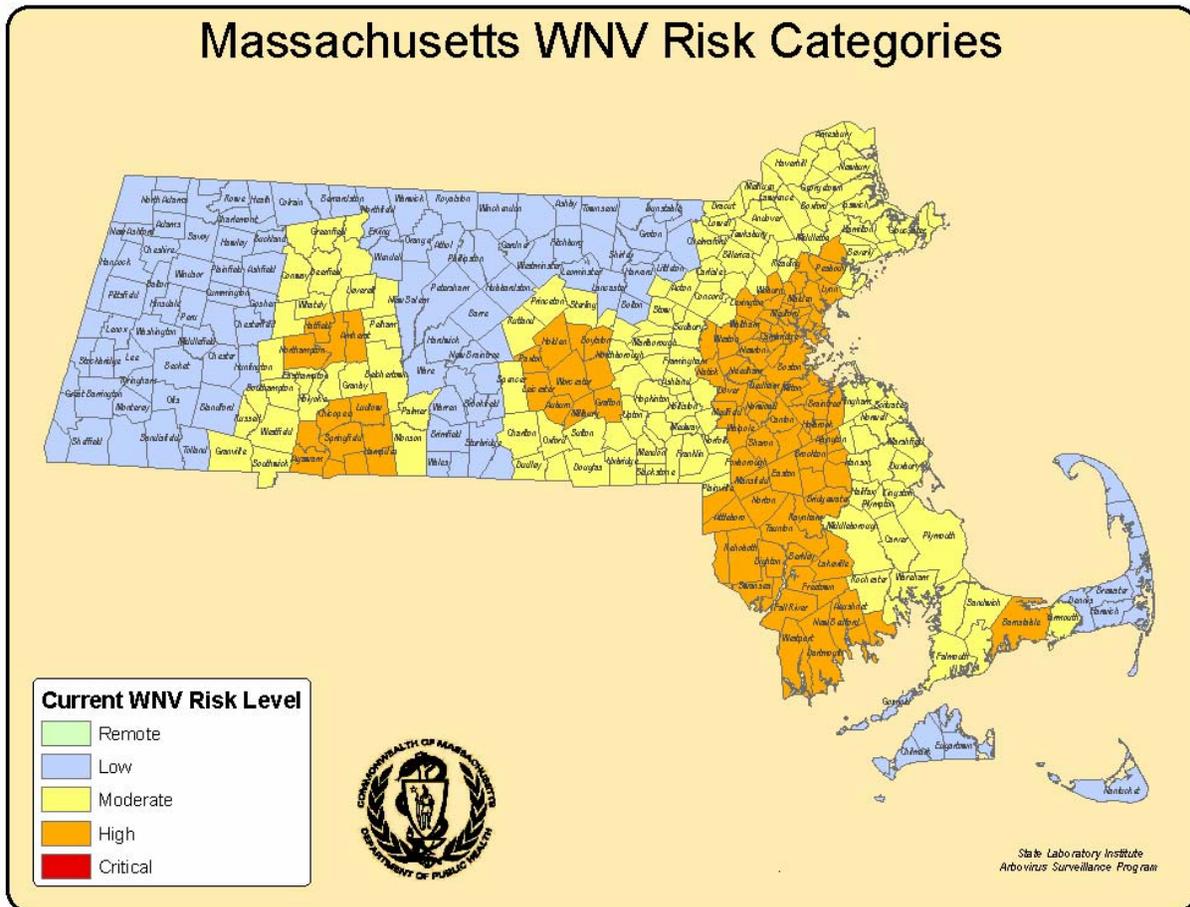
* One MA case exposed out-of-state. Two out-of-state cases exposed in their home states are not included.

Geographic Risk Levels

Beginning in 2007, arbovirus risk maps were produced by integrating historical data and areas of mosquito habitat with current positive virus isolations (in humans, mosquitoes, etc) and weather conditions. Risk levels serve as a relative measure of the likelihood of a human outbreak of disease and were updated weekly based on that week's surveillance data. Risk levels from the 2008 season were assigned as seen in the map below. This information will be used to help predict risk in 2009, and will be revised as 2009 surveillance data is collected.

Final 2008 WNV Risk Categories

(As described in Table 1 of the 2008 MDPH Arbovirus Surveillance and Response Plan)



EASTERN EQUINE ENCEPHALITIS (EEE) VIRUS

Birds

Birds are not routinely tested for EEE virus in Massachusetts because the results do not provide useful information on the level of human risk.

Mosquito Samples

Thirteen of 4575 mosquito samples collected and tested were positive for EEE virus in Massachusetts in 2008. They were collected from six towns in two counties. Positive EEE virus mosquito samples included 11 *Culiseta melanura*, and two *Ochlerotatus canadensis*. *Ochlerotatus canadensis* is a persistent human biting mosquito and can be involved in the transmission of EEE virus to humans in Massachusetts.

Horses

One horse tested positive for EEE in Freetown, Bristol County. The onset date of symptoms was 9/20/2008.

Humans

One human case of EEE was identified in Massachusetts in 2008. This case was a resident of Essex County, was in the over 64 age group, and had a symptom onset date of 9/20/2008. Exposure to the virus was determined to be out-of-state. This case represents the first reported human fatality in Massachusetts from EEE virus since 2006.

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Final 2008 EEE Risk Categories

(As described in Table 2 of the 2008 MDPH Arbovirus Surveillance and Response Plan)

