

Arbovirus Surveillance Summary, 2009
 Massachusetts Department of Public Health (MDPH)
 Arbovirus Surveillance Program

WEST NILE VIRUS (WNV)

Birds

In 2009, the MDPH Arbovirus Surveillance Program discontinued dead bird reporting and testing. This was done because, in recent years, the tracking and testing of dead birds has become less useful for monitoring WNV activity. However, certain situations were still reportable to other agencies. Sick or dying waterfowl and other large bird die offs were reported to the Massachusetts Division of Fisheries and Wildlife (MDFW) and poultry flocks experiencing sudden mortality or illness were reported to the Massachusetts Department of Agricultural Resources (MDAR).

Mosquito Samples

Twenty-six of 3410 mosquito samples collected and tested were positive for WNV in Massachusetts in 2009. Positive samples were identified in 20 towns in 8 counties. Positive mosquito samples included 13 *Culex pipiens/restuans* complex; eight *Culiseta melanura*; four *Culex species*; and one *Ochlerotatus canadensis*. 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 eastern equine encephalitis (EEE) virus although it can also carry WNV. *Ochlerotatus canadensis* is a persistent human biting mosquito and can be involved in the transmission of both WNV and EEE virus to humans in Massachusetts. For a complete list of positive mosquito samples by city/town, please see the annual [Cumulative Mosquito Summary by County and Municipality](#) report.

Animals

One horse tested positive for WNV in 2009. This horse was identified in Hatfield, in Hampshire County and had an illness onset of 10/04/09.

Humans

There were no human cases of WNV identified in Massachusetts in 2009. The number of confirmed human cases nationwide was lower in 2009 (663) compared to 2008 (1356).

Specimens Tested and WNV Positive by Year, 2005-2009

Species	2005		2006		2007		2008		2009	
	Tested	Positive								
Birds	303	57	313	57	223	43	139	63	n/a	n/a
Mosquito Pools	8136	99	9344	43	7271	65	4575	136	3410	26
Animal	12	0	16	0	8	0	14	0	13	1
Humans	544	6	649	3	392	6*	385	1	267	0

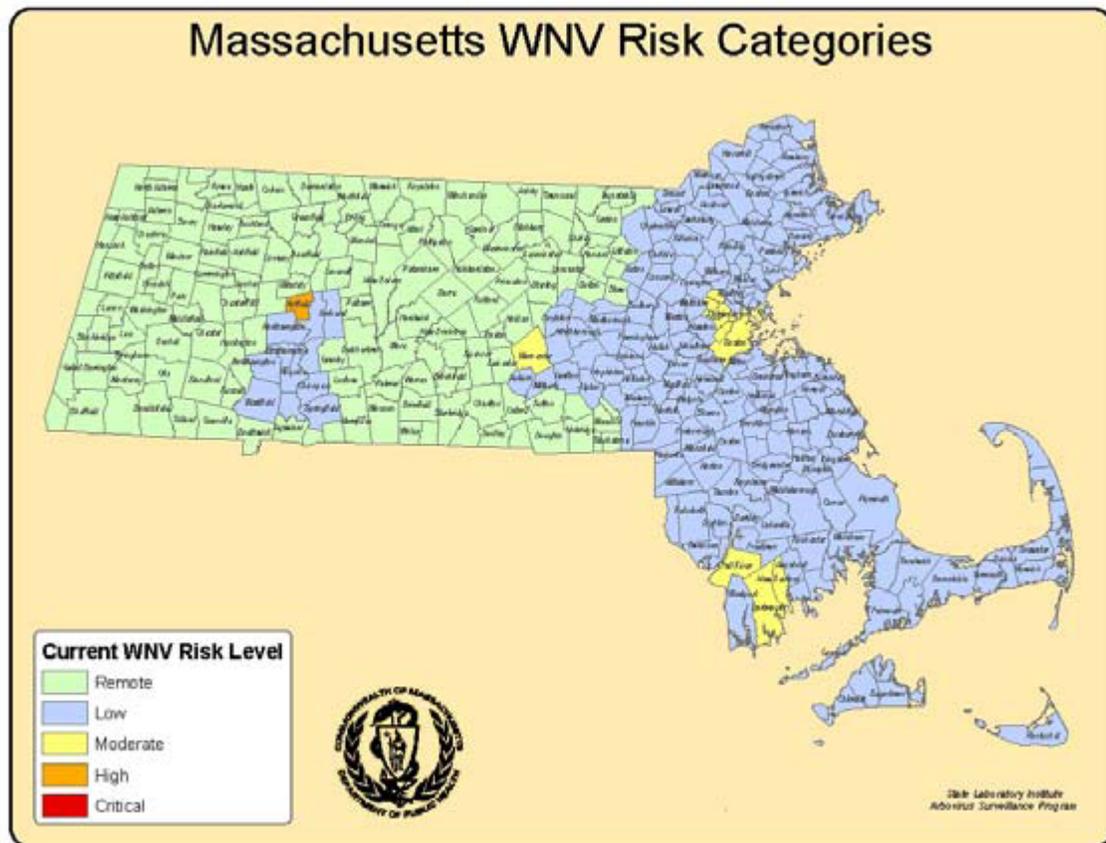
* One MA case exposed out-of-state. Two out-of-state cases exposed in their home states are not included.

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 an outbreak of human disease and were updated weekly based on that week's surveillance data. Risk levels from the 2009 season were assigned in the map below. This information will be used to help predict risk in 2010, and will be revised as 2010 surveillance data is collected.

Final 2009 WNV Risk Categories

(As described in Table 1 of the 2009 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

Fifty-four of 3410 mosquito samples collected and tested were positive for EEE virus in Massachusetts in 2009. They were collected from 18 towns in six counties. Positive EEE virus mosquito samples included 48 *Culiseta melanura*, four *Ochlerotatus canadensis*, and two *Aedes vexans*. *Aedes vexans* mosquitoes feed primarily on mammals and can be involved in the transmission of EEE virus to humans. For a complete list of positive mosquito samples by city/town, please see the annual [Cumulative Mosquito Summary by County and Municipality](#) report.

Animals

Three mammals were identified as positive for EEE virus in 2009.

City or Town	Animal Species	Onset Date	Virus Result
Newbury	alpaca	10/14/2009	EEEv
Peabody	horse	9/18/2009	EEEv
Walpole	cow	10/7/2009	EEEv

Humans

There were no cases of human EEE virus infection identified in Massachusetts in 2009.

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Final 2009 EEE Risk Categories

(As described in Table 2 of the 2009 MDPH Arbovirus Surveillance and Response Plan)

