

WEST NILE VIRUS

1885 Framingham Malaria Outbreak

General Facts

- Originated in the African country of Uganda
- First appeared in the U.S. in New York City in 1999
- In US since 1999: **36,659 human cases**
15,904 Neuroinvasive human cases
1,261 Fatalities (CDC data)
- First appeared in MA in 2000
- Infects: birds, humans, horses, domestic animals and most other vertebrates
- Evolved genotype, WN02, spread across U.S. efficiently transmitted by Culex
transmission increases with temperature

WNV and Humans

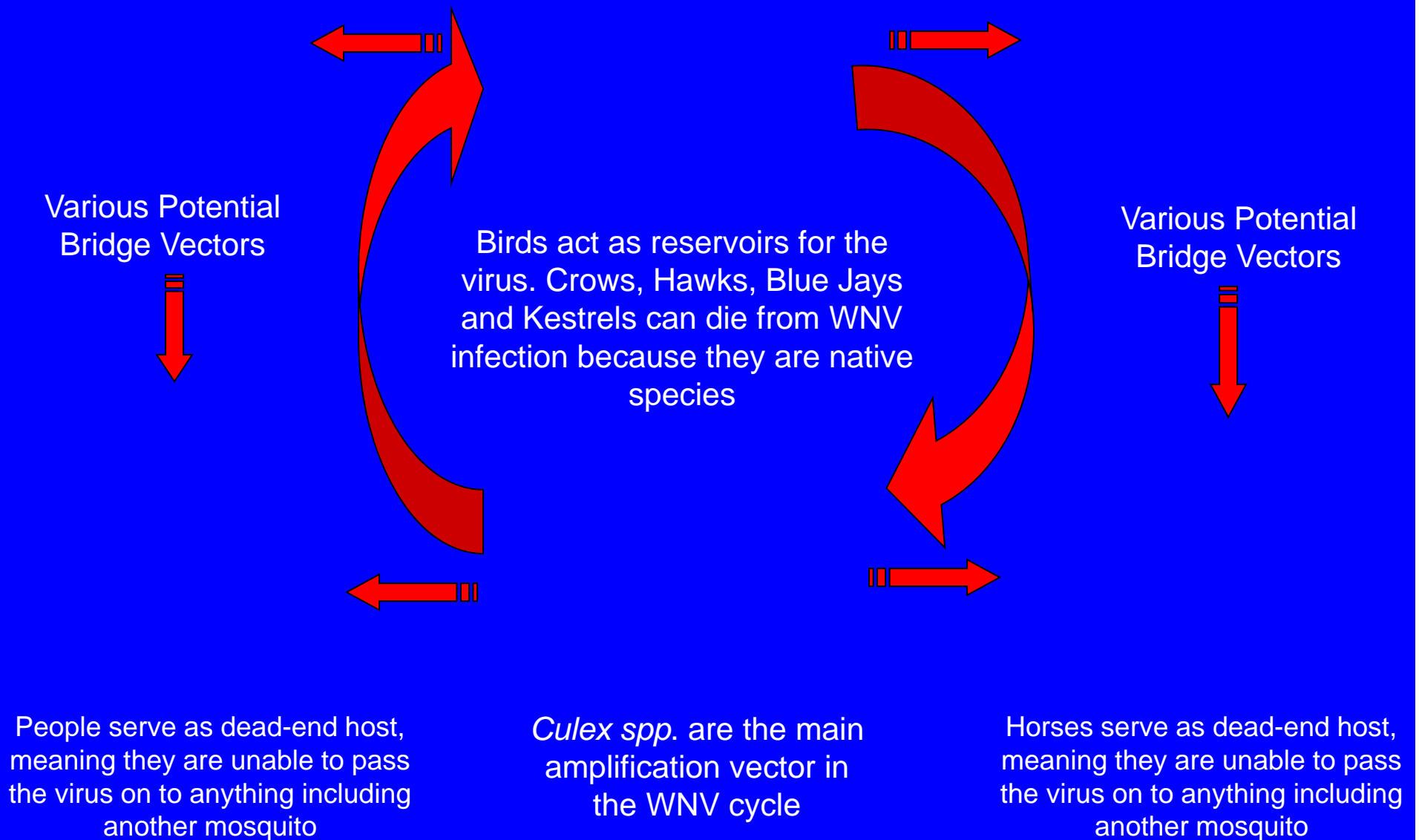
- Most susceptible - People over 50 years old
- Incubation period 2 -14 days
- About 20% of people infected develop symptoms

- West Nile Fever (most likely will be missed)
- West Nile Meningitis
- West Nile Encephalitis

Symptoms

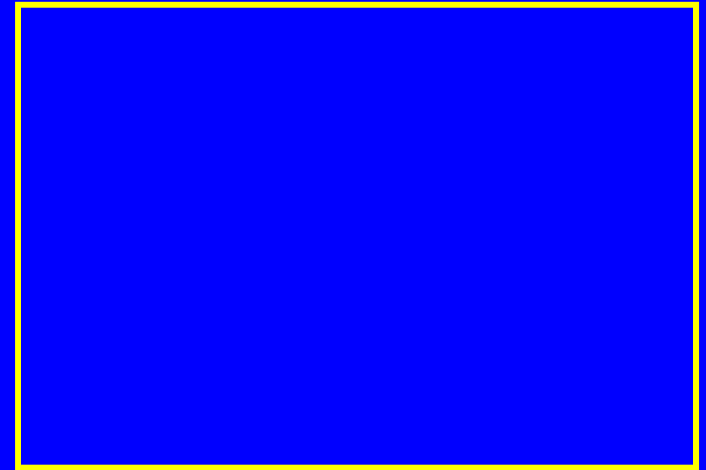
- WNV can cause illness varying from mild fever to more serious encephalitis or meningitis.
 - High fever
 - Headaches
 - Swollen lymph nodes
 - Neck stiffness
 - Skin rash
 - Disorientation

WNV Transmission Cycle



Culex pipiens

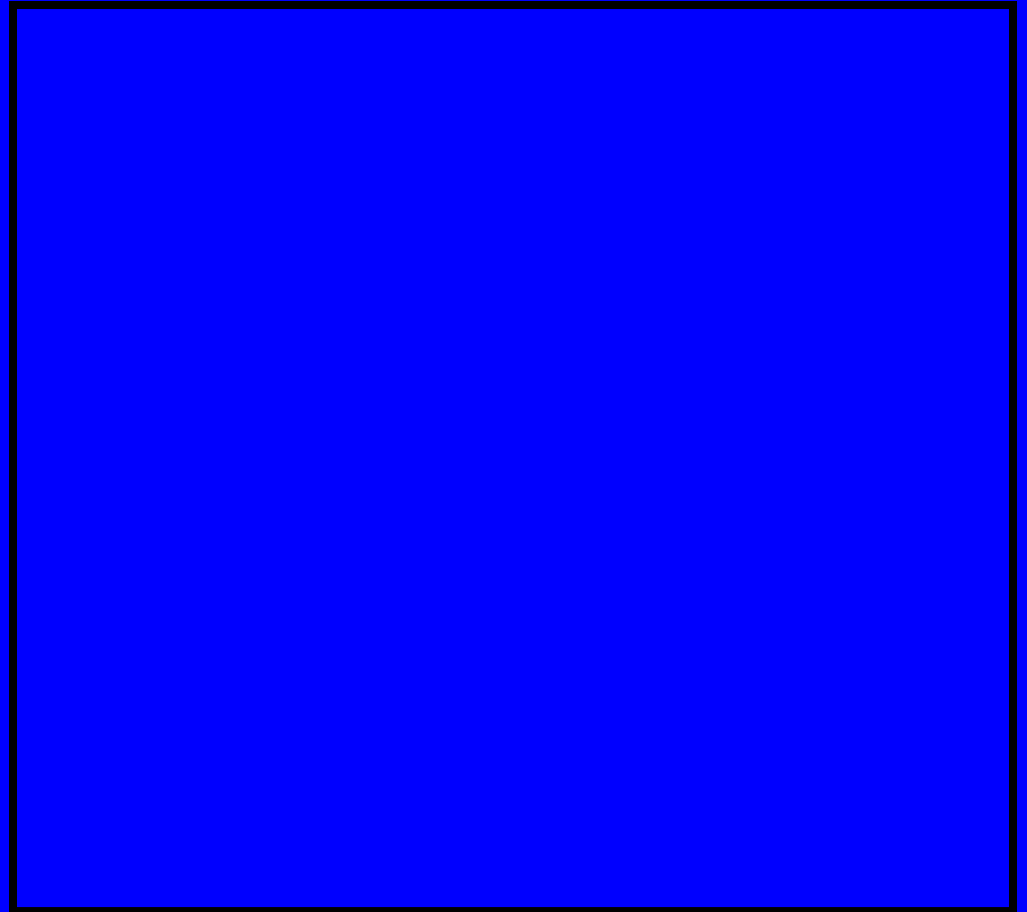
- Common name: *Northern House Mosquito*
- Will readily enter into homes
- Primarily bird feeder but will feed on mammals
- Greatest risk for transmission is from late July through September

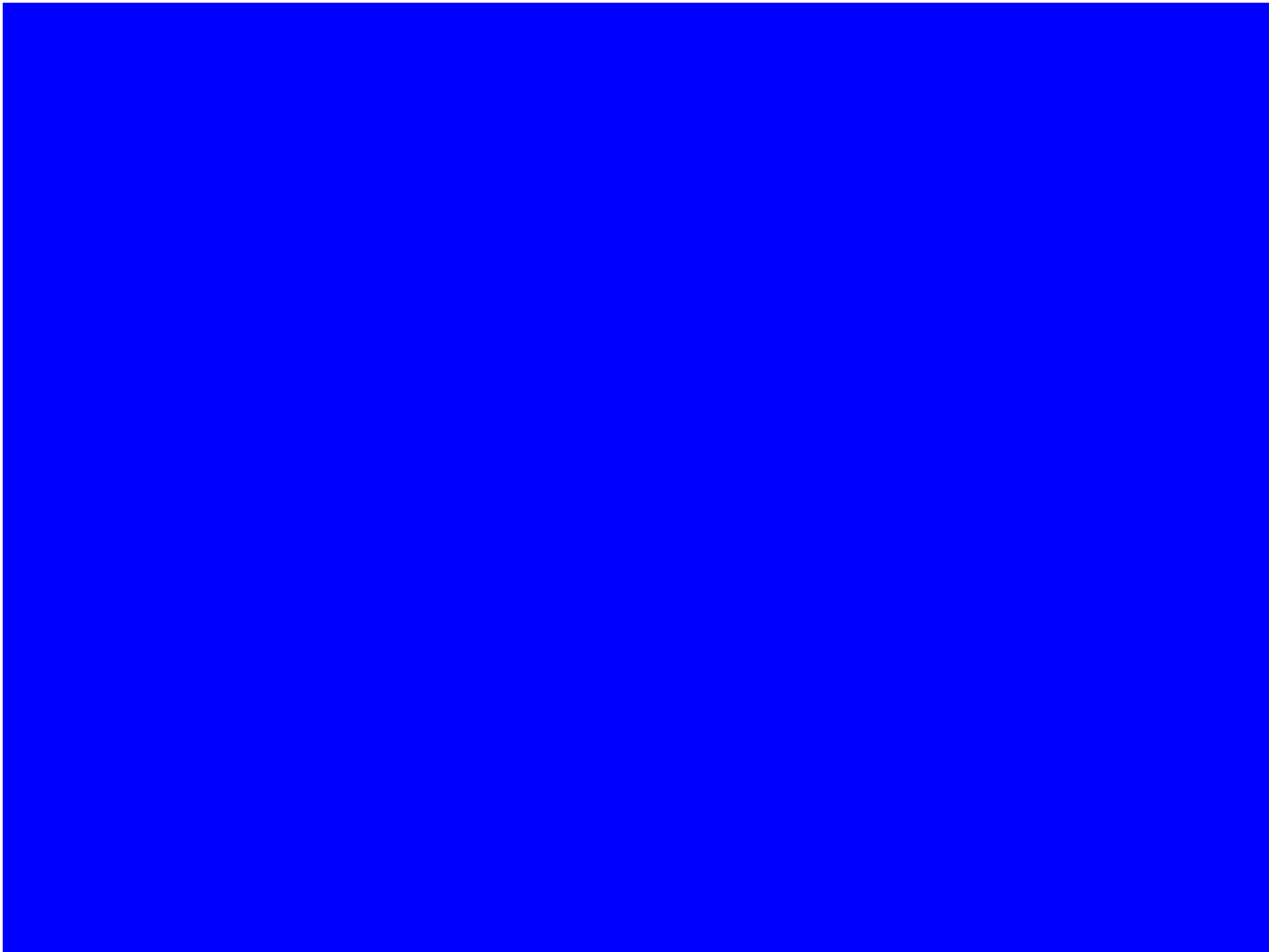


Empty Backyard Breeding Sites:
Clogged Gutters, Trash Barrels, Empty Flower pots,
Buckets, Wheel Barrels, Animal Water Troughs and
anything that can hold water

Monitoring Tool: Gravid Traps

- Gravid = Full of Eggs
- Uses organically enriched water to attract mosquitoes
- Females come to lay eggs on the water surface
- Fan pulls the mosquitoes up into a collection chamber





Weather and West Nile Virus

Winter

- WNV is carried through the winter by adult culex mosquitoes
- Warm winters may increase survival rates

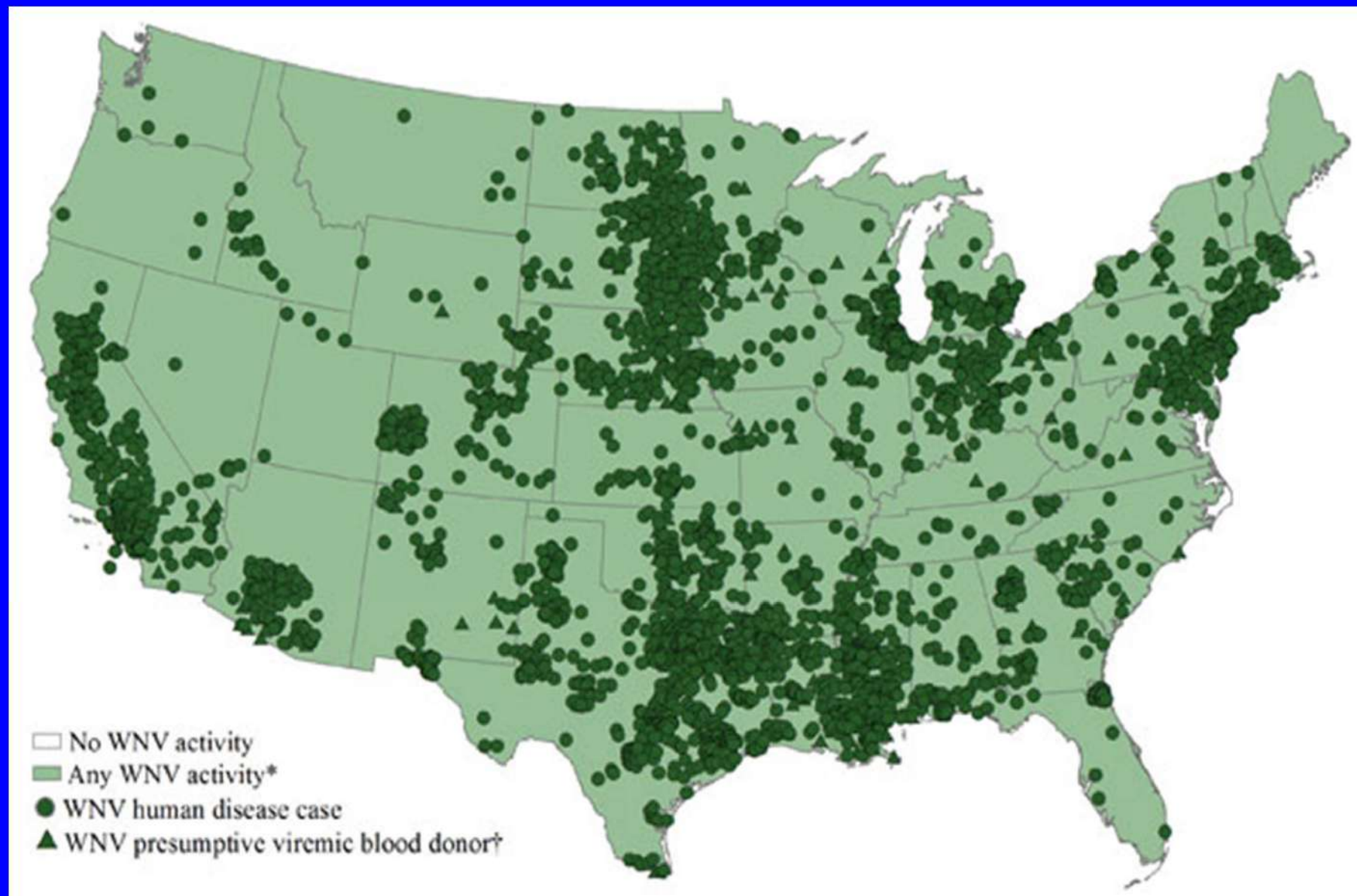
Spring

- Warm Spring provides early start to WNV cycle extending the season

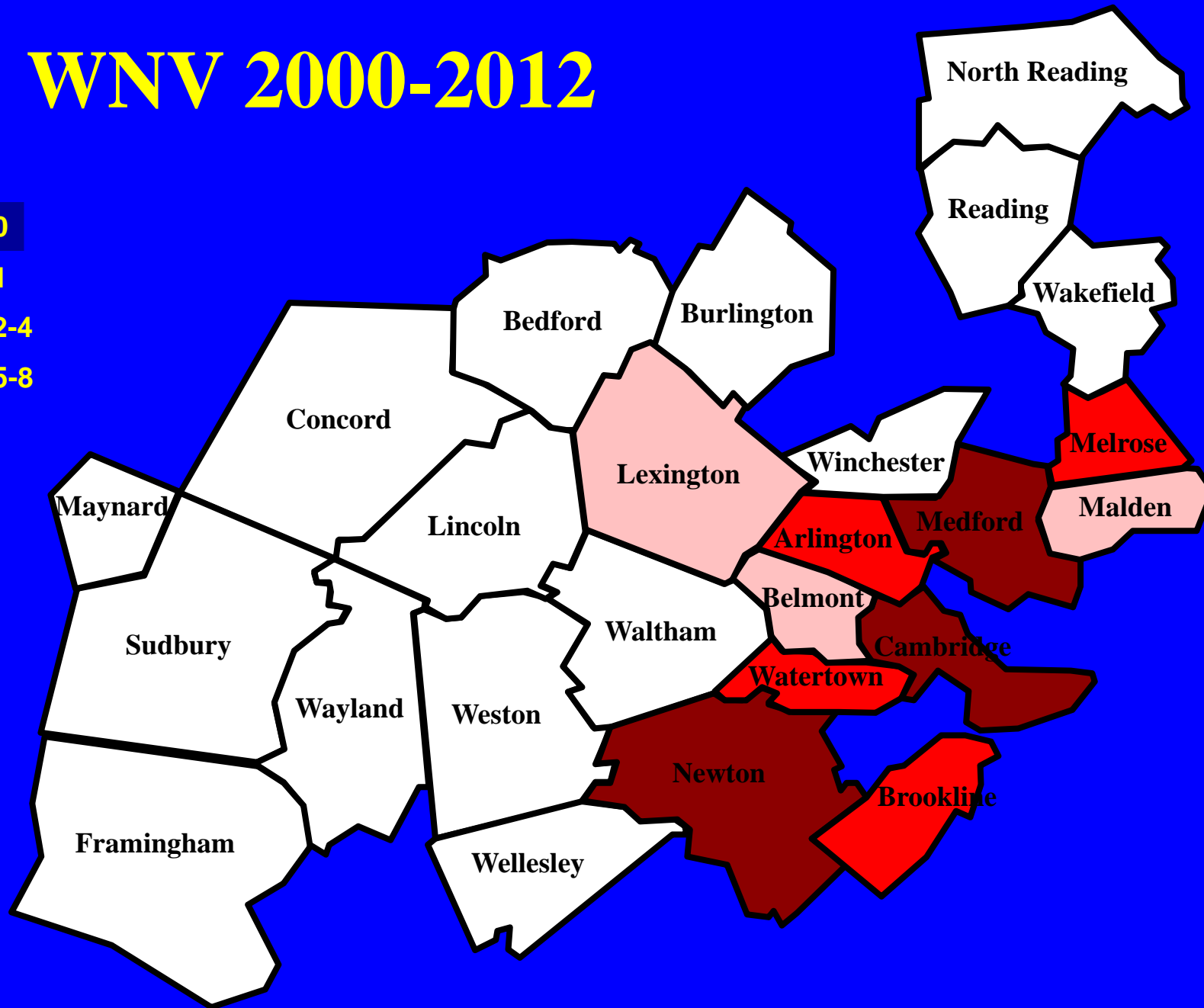
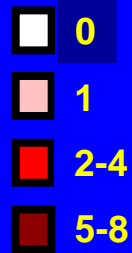
Summer

- Warmer temperatures increase the transmission intensity through faster mosquito and virus development and increased biting rates

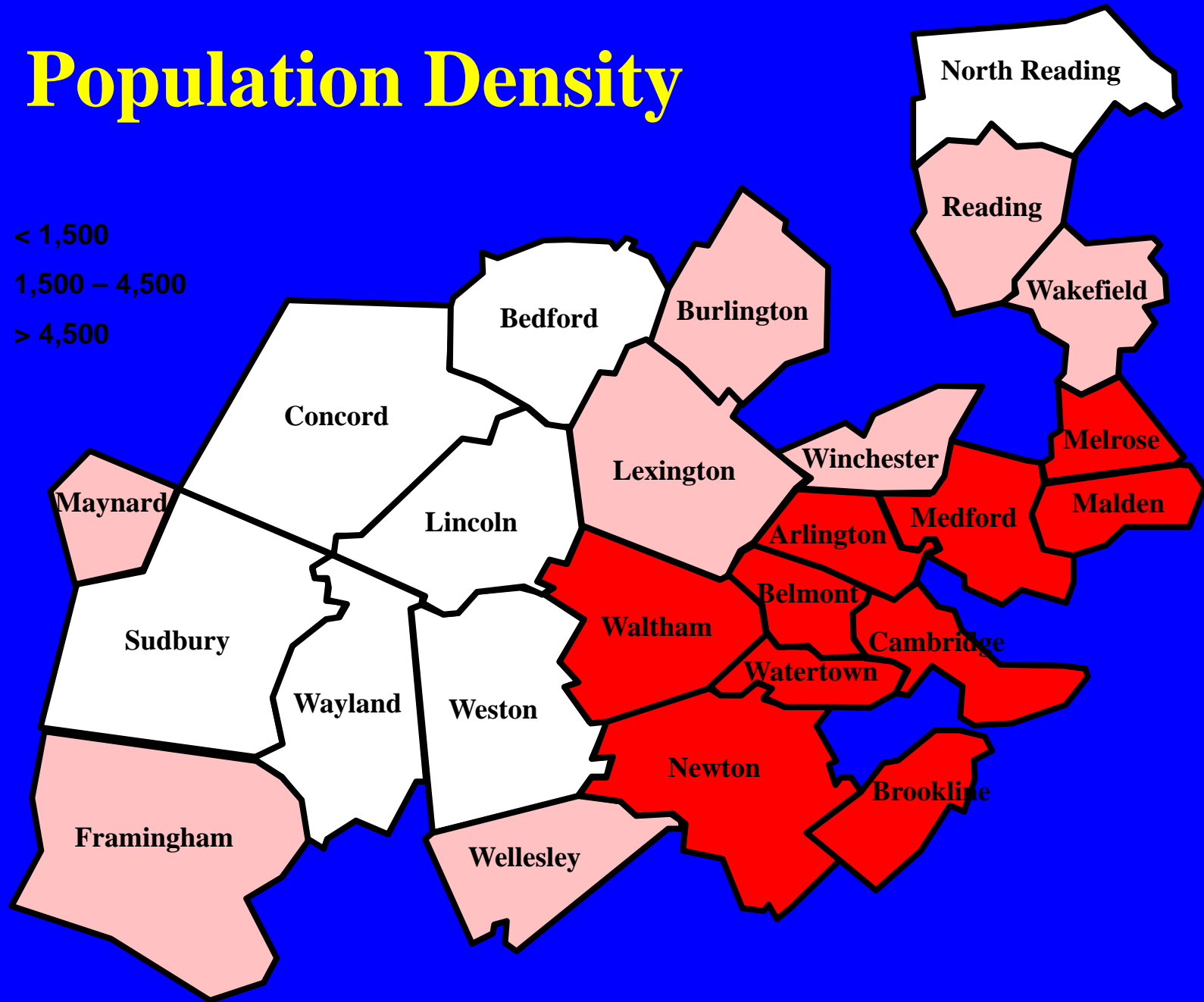
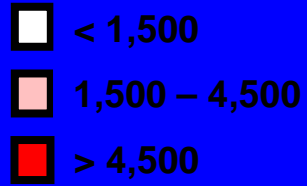
West Nile virus (WNV) activity reported to ArboNET, by state, United States, 2012 (as of October 31, 2012)



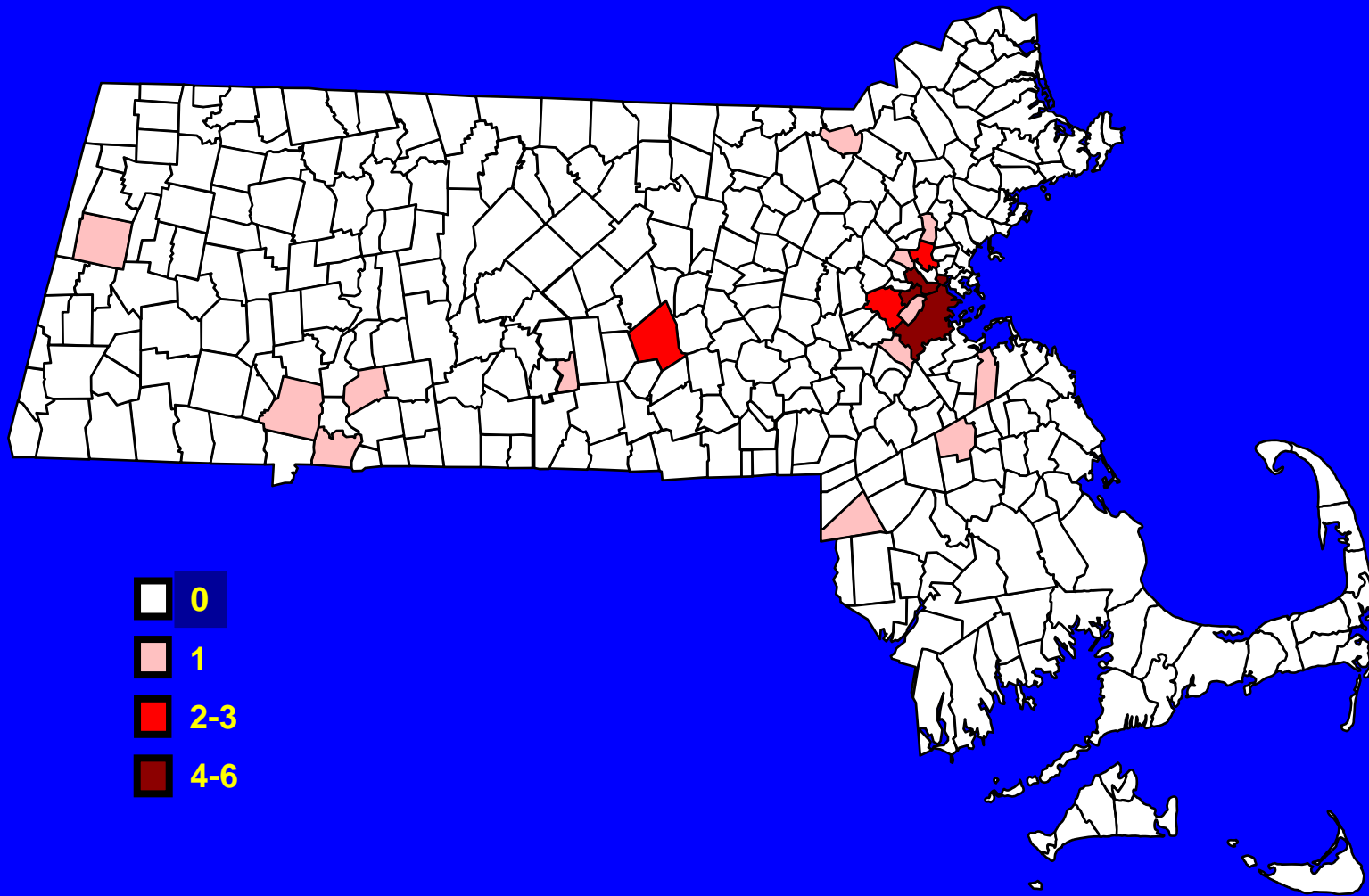
WNV 2000-2012



Population Density



2012 WNV Massachusetts



2012 Nationwide

- 5245 Cases
- 2663 neuroinvasive cases
- 236 Fatalities
- 589 infections in blood donors

WNV in Massachusetts 2001-2012

