



Commonwealth of Massachusetts
Department of Public Health

Helping People Lead Healthy Lives In Healthy Communities

WNV and EEE Surveillance and Response

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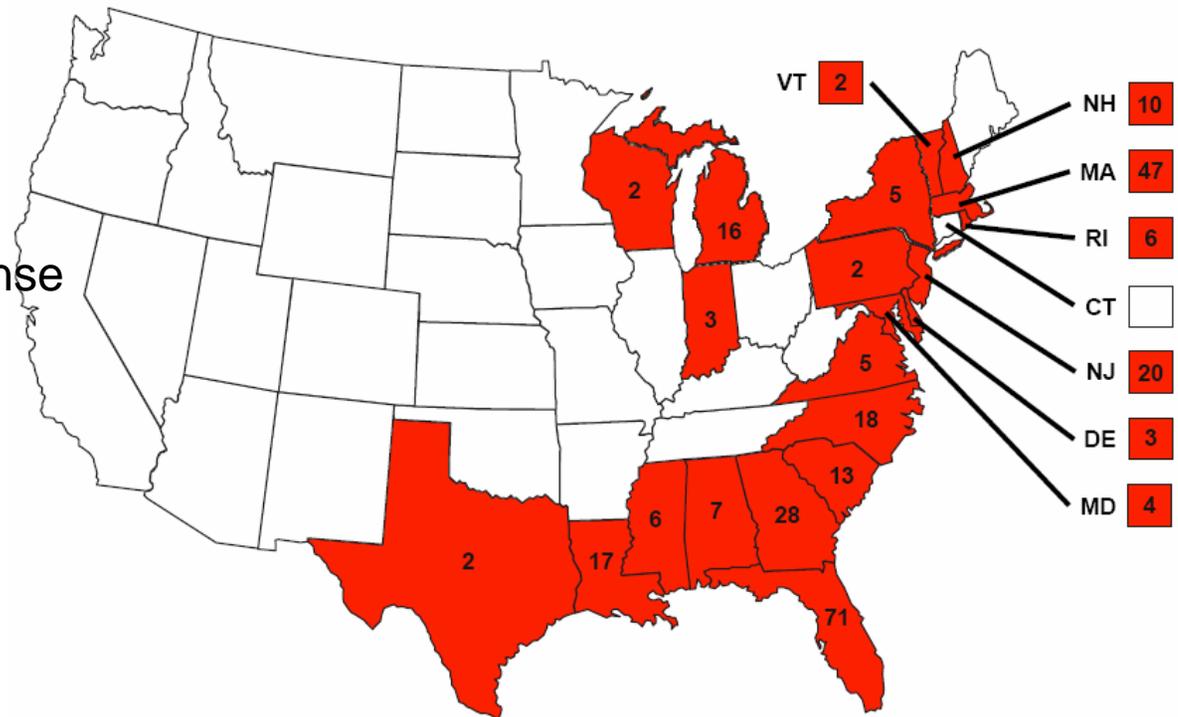


William A. Hinton State Laboratory Institute



- Agency roles
- Arbovirus Overview
- Recent Changes in Surveillance and Response
- 2013 Season
- Ongoing Challenges

Eastern Equine Encephalitis 1964-2012



Interagency Collaboration

- **MDPH**
 - Bureau of Laboratory Science
 - Bureau of Infectious Disease
- **State Reclamation and Mosquito Control Board** Massachusetts Department of Agricultural Resources (MDAR), Department of Conservation and Recreation (DCR), and Department of Environmental Protection (DEP)]
- **Mosquito Control Projects (MCPs)**
 - Berkshire County
 - Bristol County
 - Central Massachusetts
 - Cape Cod
 - East Middlesex
 - Norfolk County
 - Northeast Massachusetts
 - Plymouth County
 - Suffolk County



DPH Roles in Responding to EEE/WNV Threats

Surveillance

- Set and collect traps from long-term sites in southeastern MA
 - Collaborate supplemental trapping with MCP's

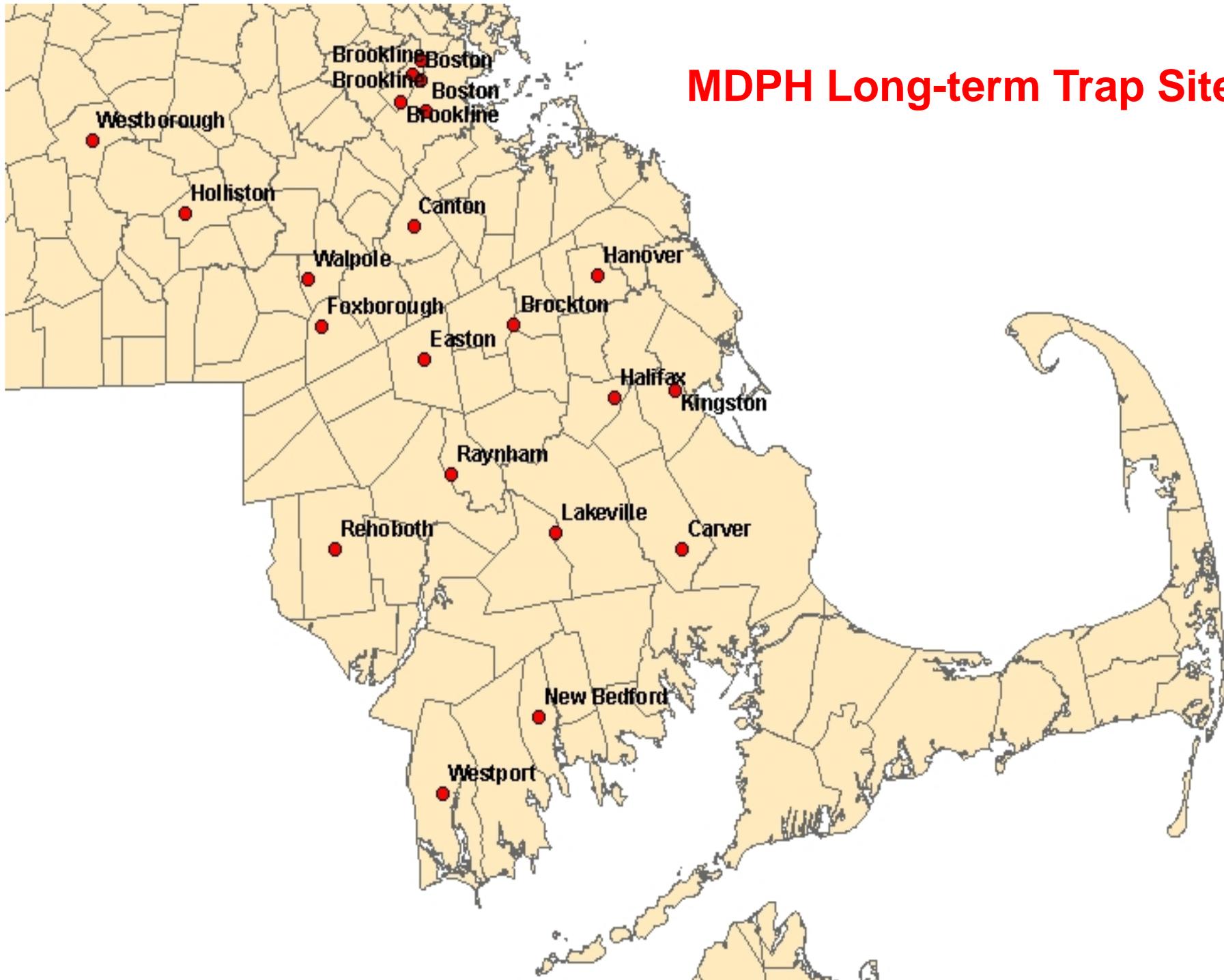
Laboratory Testing and Correlation with Patient Information

- Test specimens for EEE/WNV infection
 - Mosquitoes, suspect animal & human specimens

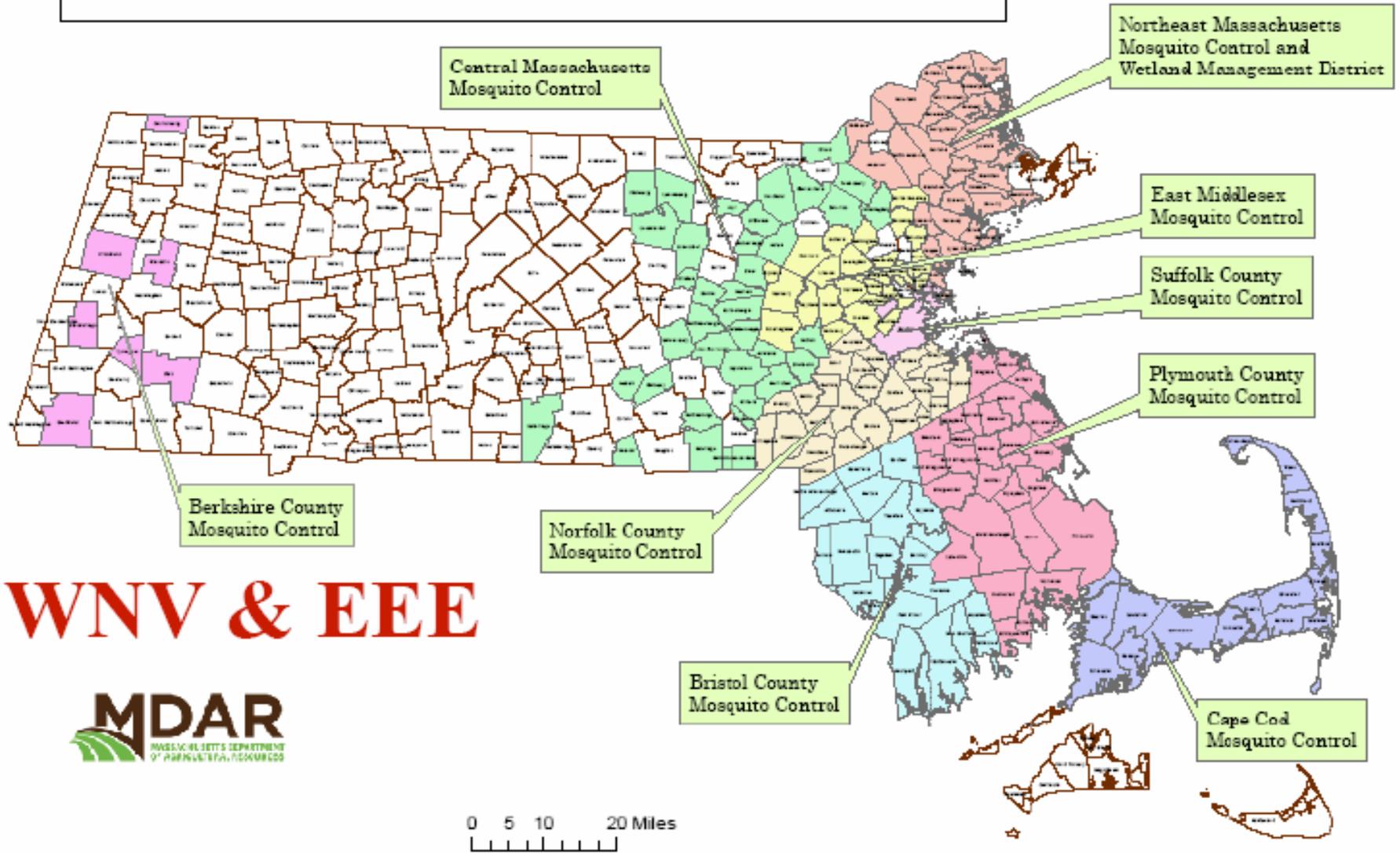
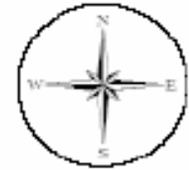
Risk Analysis and Communication

- Identify areas at risk for human disease
- Communicate findings with local health agents, MCP's and the public
- Provide information to guide the control actions to reduce the risk of disease

MDPH Long-term Trap Sites



Mosquito Control Projects and Districts Commonwealth of Massachusetts



WNV & EEE



0 5 10 20 Miles

Additional Partners/Stakeholders

- DPH: Bureau of Environmental Health
 - Office of Preparedness and Emergency Management
- State Agencies
 - Department of Environmental Protection
 - Department of Conservation & Recreation
 - Department of Fish and Game
 - MassWildlife
- Local Health Departments/Municipal government
- Citizen groups
 - Environmental advocacy groups
 - Affected families

Eastern Equine Encephalitis

Human Disease

- Rare but severe
- Children disproportionately affected
- Incubation period 3-10 days
- Abrupt onset fever, chills, headache, muscle aches, nausea and vomiting, seizures, coma
- ~30-50% mortality
- ~80% of survivors residual neurological deficits

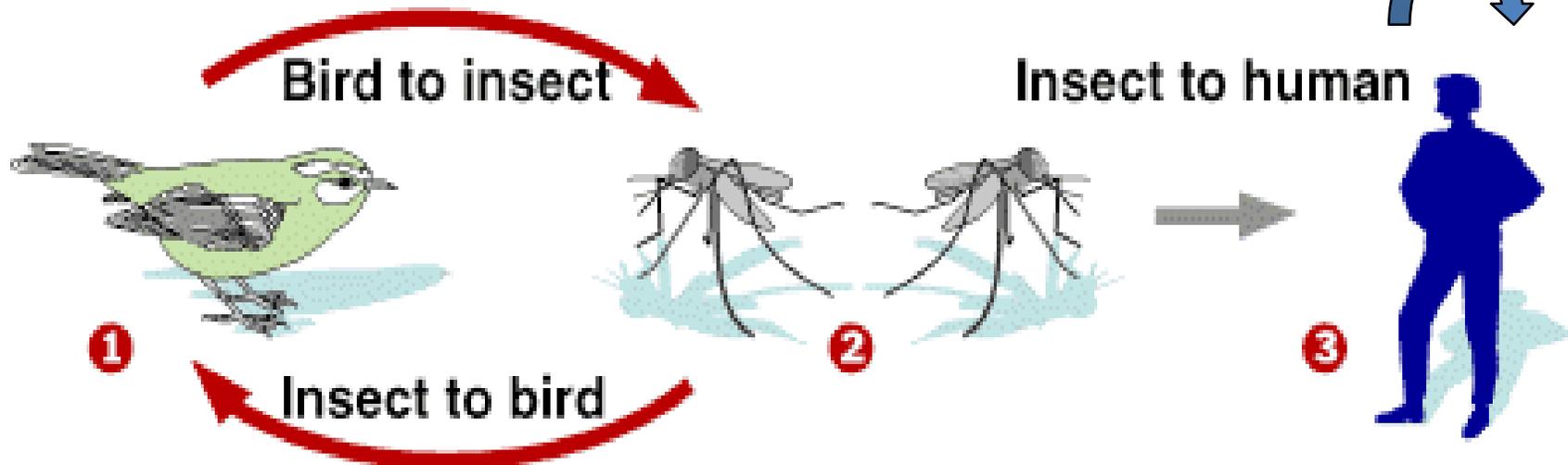
West Nile Virus Infection

Human Disease

- Incubation period 3 to 14 days
- Age-related severity
- 80% Mild and sub-clinical infection
- 20% Headache, sore throat, fatigue, muscle and joint aches, fever (moderate to high),
- <1% Aseptic meningitis, encephalitis, meningoencephalitis

Arbovirus Transmission

Enzootic Cycle:
Virus Amplification by *Ornithophilic* Mosquitoes



Epizootic Cycle:
Incidental Transmission by Zoophilic Mosquitoes

EEEV: *Cq perturbans, Ae vexans, Ae sollicitans, Oc. canadensis*

WNV: *Cx. spp.*