

MIDLAND COUNTY MOSQUITO CONTROL PROGRAM OVERVIEW



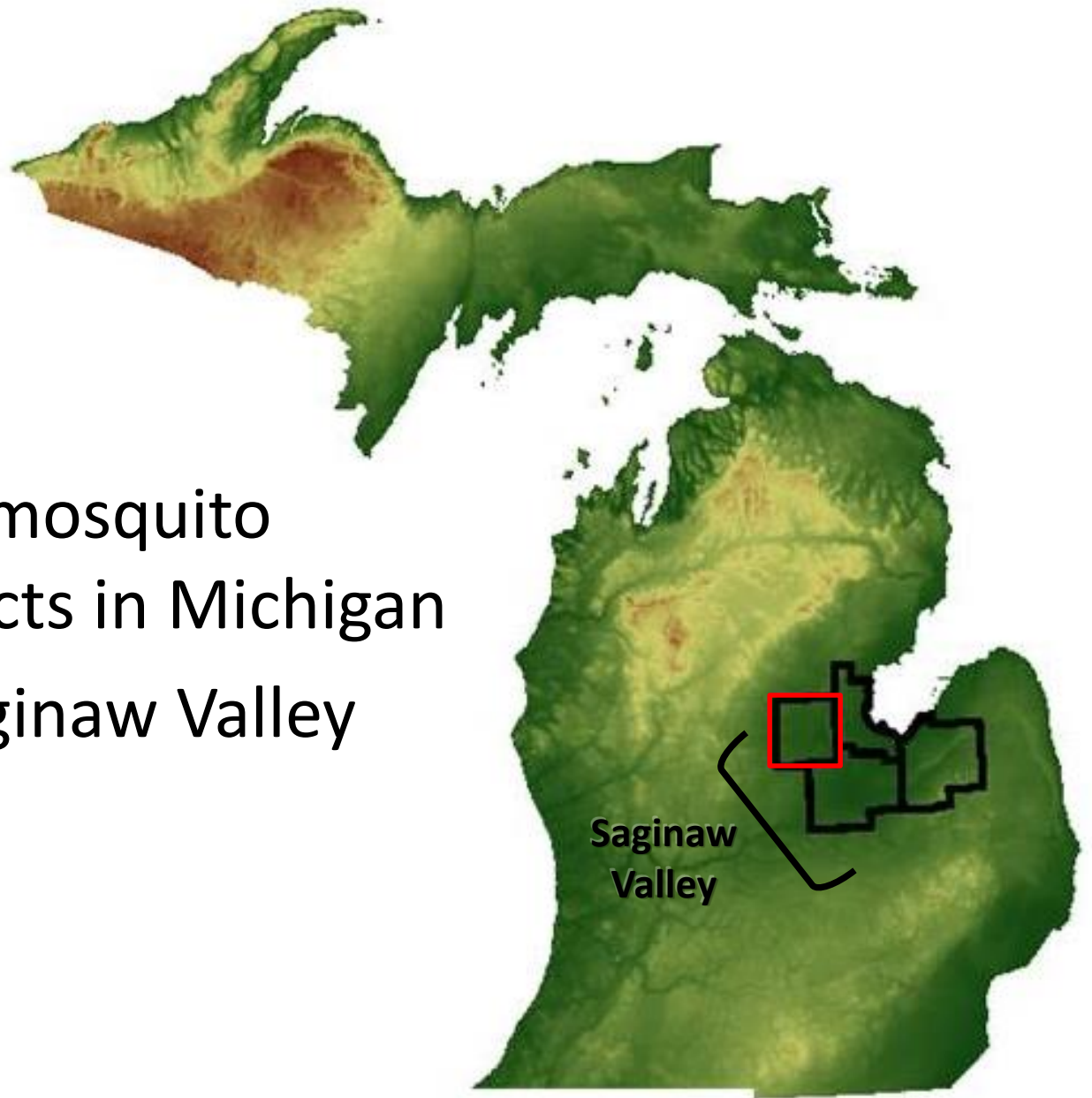
Carl W. Doud
Midland County Mosquito Control
27 March 2017

Midland County Mosquito Control

- Midland County 530 square miles, 83K residents
- Disease prevention, nuisance reduction
- Since 1983
- 29 total employees
 - Six permanent employees – Director, Operations Supervisor, Biologist, Office Manager, 2 Foremen
 - Asst. Foremen (seasonal)
 - Mechanic (seasonal)
 - 1 Biological Technician (seasonal)
 - 18 Field Technicians (seasonal)
 - 1 Office Clerk (seasonal)

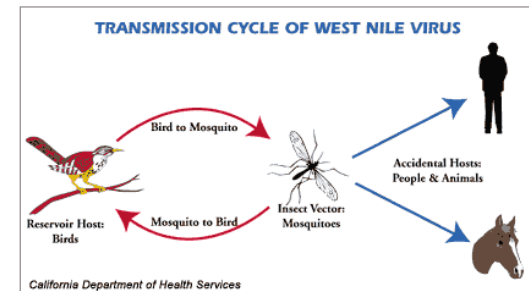


- Four county mosquito control districts in Michigan
- All within Saginaw Valley

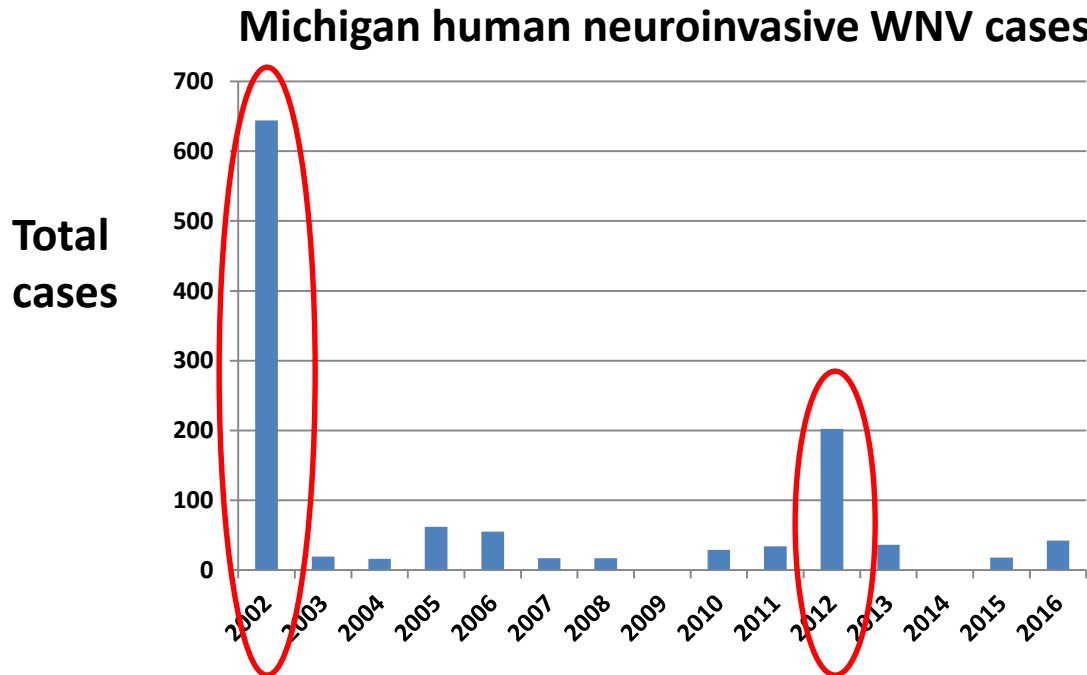


MI Mosquito borne Disease

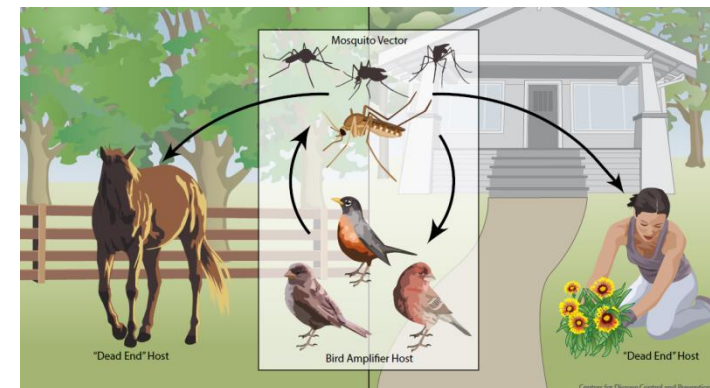
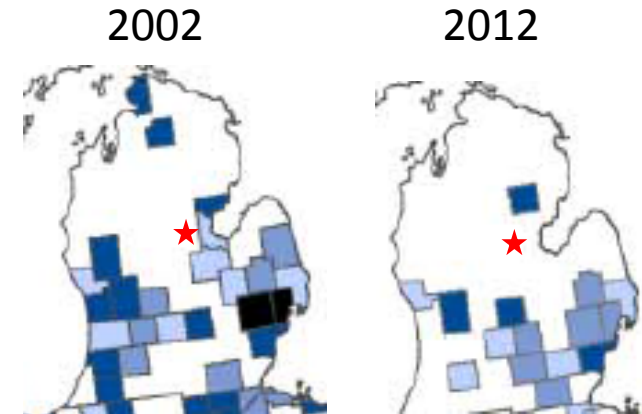
- West Nile – since 2002 – WNV found in birds and/or mosquitoes most years in Midland County
- St. Louis Encephalitis – 1975 outbreak led to MCMC
- Eastern Equine Encephalitis – Horse and human disease
- California Group Viruses
 - LaCrosse Encephalitis (LAC)
 - Jamestown Canyon (JC)
- Dog Heartworm (32 cases reported since 2007)
- Malaria (historically MI known as “home of malaria”)



Michigan/Midland County WNV Cases & Surveillance



- Midland County WNV surveillance trends
 - **2.6%** WNV positive mosquito pools
 - **19.2%** WNV positive corvids



Common Mosquito Species

- Spring floodwater
 - *Aedes canadensis*
 - *Aedes provocans*
 - *Aedes stimulans*



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 - *Aedes vexans*
 - *Aedes trivittatus*
 - *Aedes cinereus*



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- Permanent/semi permanent water sources
 - *Anopheles quadrimaculatus*
 - *Anopheles punctipennis*
 - *Coquilleidia perturbans*
 - *Culex pipiens*
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- Container/tree hole
 - *Aedes triseriatus*
 - *Aedes japonicus*



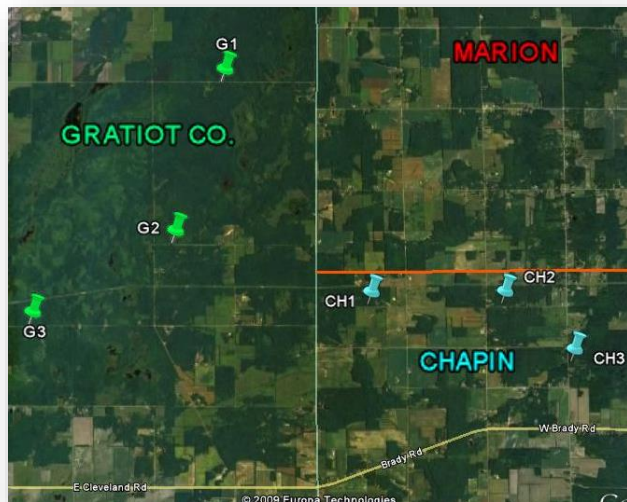
Seasonal Operational Schedule

FIELD OPERATIONS SCHEDULE												
	April		May		June		July		August		September	
Operation	1 st	15 th	1 st	15 th	1 st	15 th	1 st	15 th	1 st	15 th	1 st	15 th
Spring Season												
Woodlot (Bti)												
Woodlots (MLO)												
Summer Season												
Woodlots (MLO)												
Roadside Ditches (Bti)												
Summer Sites (Bti, MLO)												
Catch-basins (BS, Altosid PG)												
County Drains (Bti)												
Adulticiding (Permenthrin)												

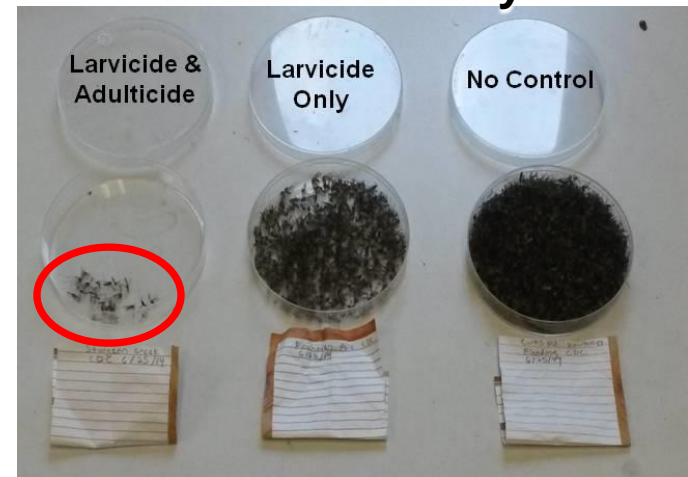
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- 75% of insecticide applications for larvae
- Majority of field work for larval/pupal stage

Effectiveness of Mosquito Control in the Saginaw Valley



Midland County



No Control

Control



No Control

Control

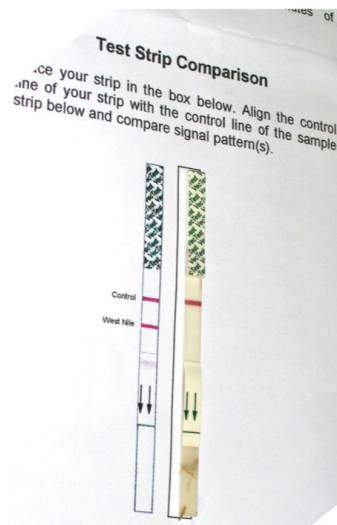
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Surveillance



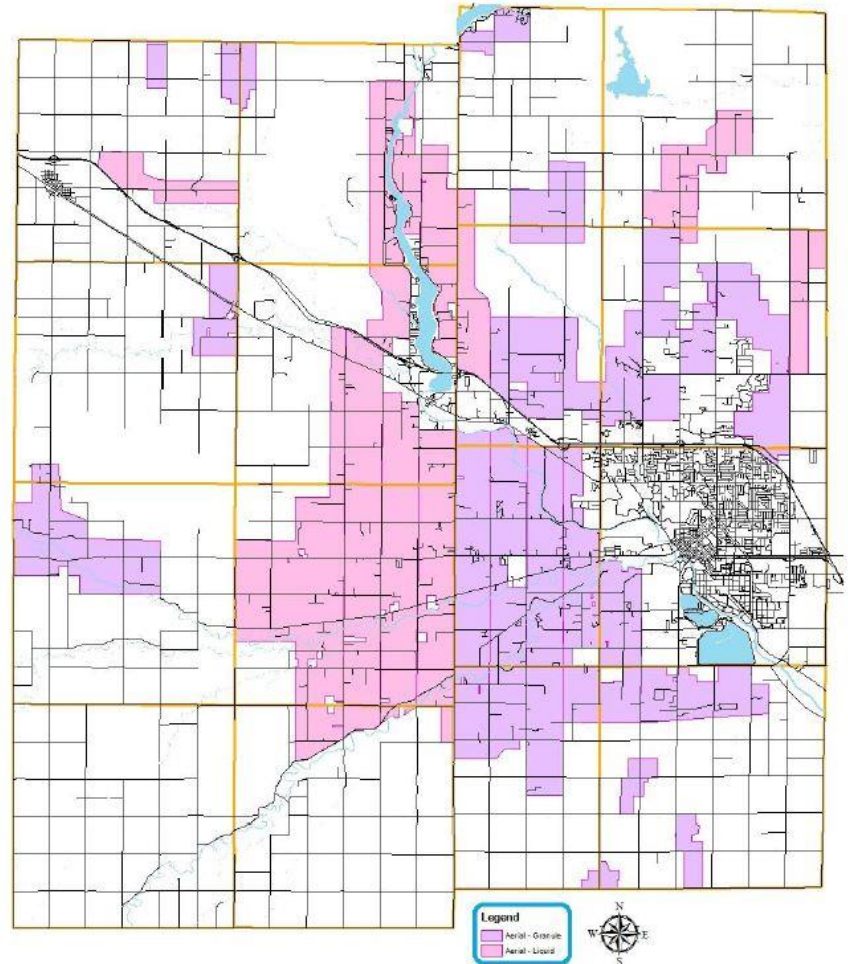
- New Jersey light traps
- CDC light traps
- Human landing counts
- Larval dipping
- Visual surveys
- Trouble calls
- Bird & mosquito pool arbovirus testing



Spring Aerial Larviciding



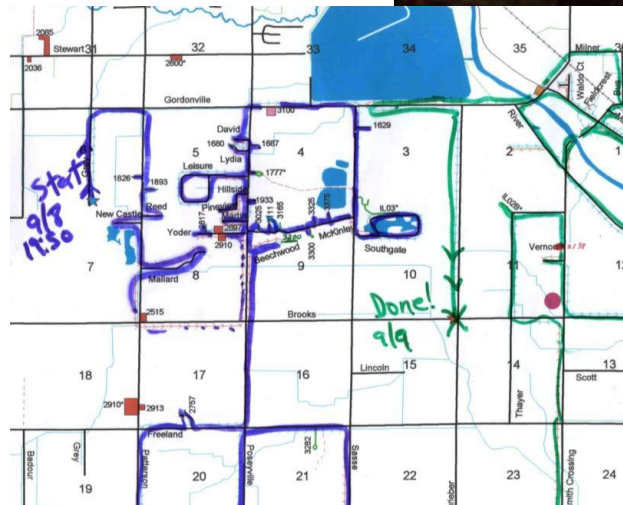
- Contracted aerial treatment for spring *Aedes* spp.
- 55,000 acres (22K hectares)
- Granule and liquid Bti



Adulticiding



- Treatment routes predesignated
- Priority for out-county areas where less larvicide efforts



Midland County WNV Prevention

- Catch basin Treatment
 - 13,000 catch basins mapped
 - Treated annually 3-4 times
 - *Bacillus sphaericus*, methoprene
- Targeted response to positive WNV testing results
 - Larviciding and adulticiding efforts



Aedes aegypti, *Ae. albopictus*

- Have **NOT** been sampled in Midland, Bay, Saginaw or Tuscola Counties
- No verified instances of these species in Michigan
- Occasional introduction to the state likely



Michigan *aegypti/albopictus* Surveillance

- State Entomologist coordinated – Erik Foster
- Weekly trapping with BG-Sentinel traps
- Funding for education/tire drives, etc.



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"Latest from the front — our friends the mosquitoes preparing and off for the summer campaign." - from *Harper's Weekly*, June 21, 1873