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ML MIDDLESEX-LONDON
HEALTH UNIT

Vector-Borne Disease Activity in Ontario
and Locally in Middlesex-London

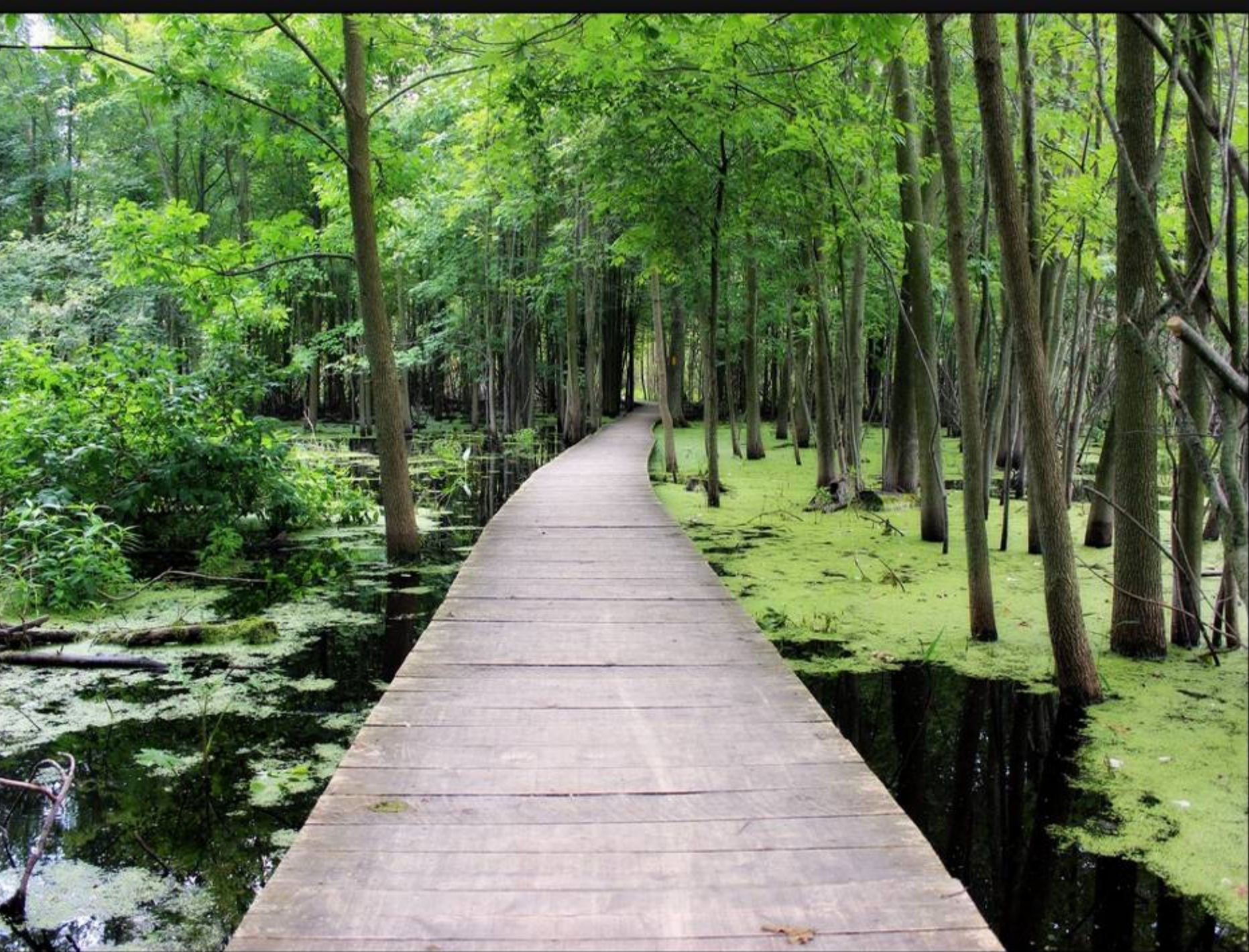
**Michigan Mosquito Control
Association**

February 2, 2017

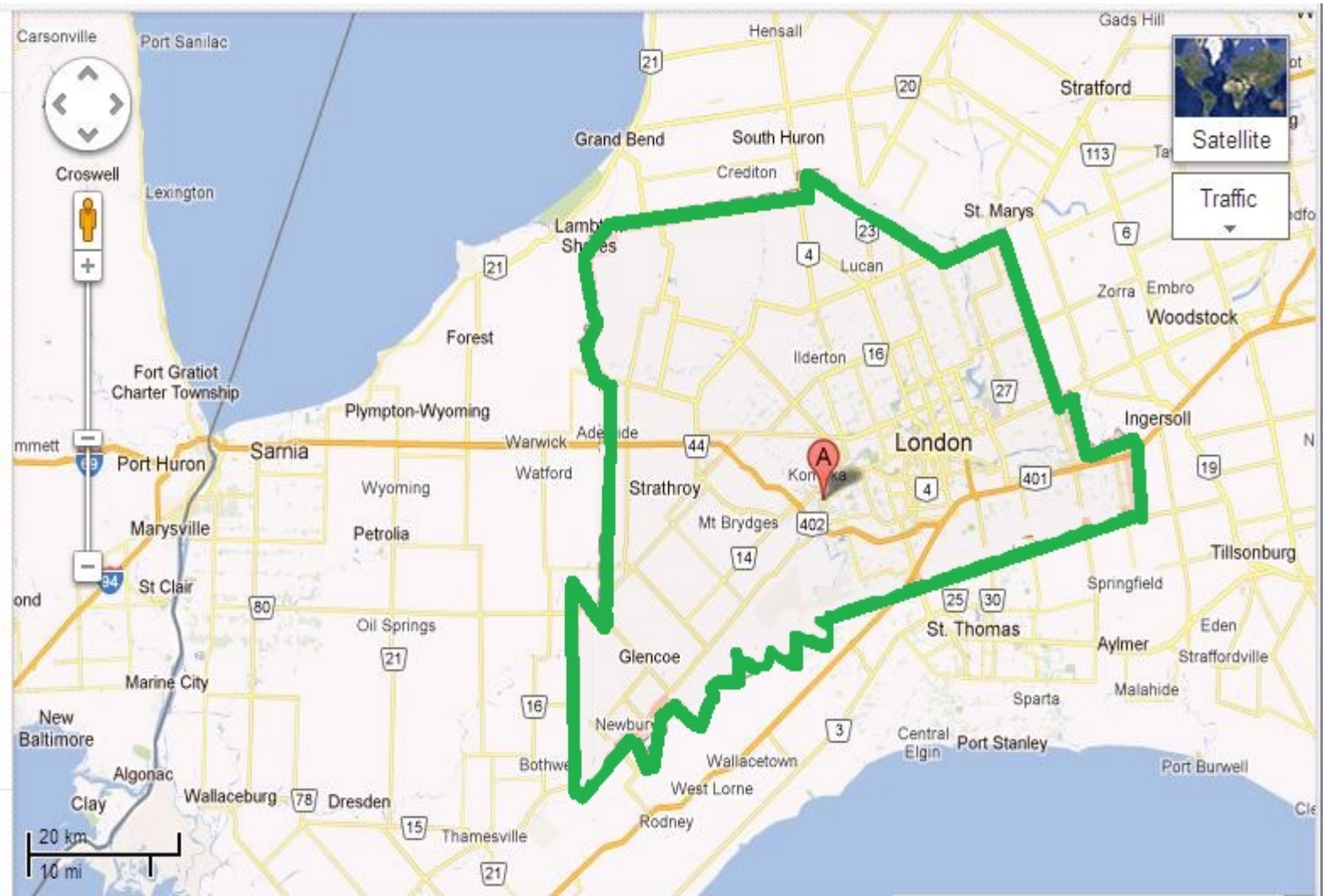
Jeremy Hogeveen, Vector-Borne Disease Coordinator

London, Ontario
Population: 355,000





Middlesex County Boundary





Michigan

London

Toronto

Detroit

The Middlesex-London Health Unit's Vector-Borne Disease Program

- Human surveillance of vector-borne diseases, including West Nile Virus, Eastern Equine Encephalitis and Lyme Disease
- Larval mosquito surveillance & identification
- Standing water larviciding
- Catch basin larviciding
- Adult mosquito trapping & viral testing
- Tick surveillance
- Public education & personal protection methods
- Intake & investigation of mosquito and tick concerns
- Reporting and analysis of seasonal data and trends

Human Surveillance

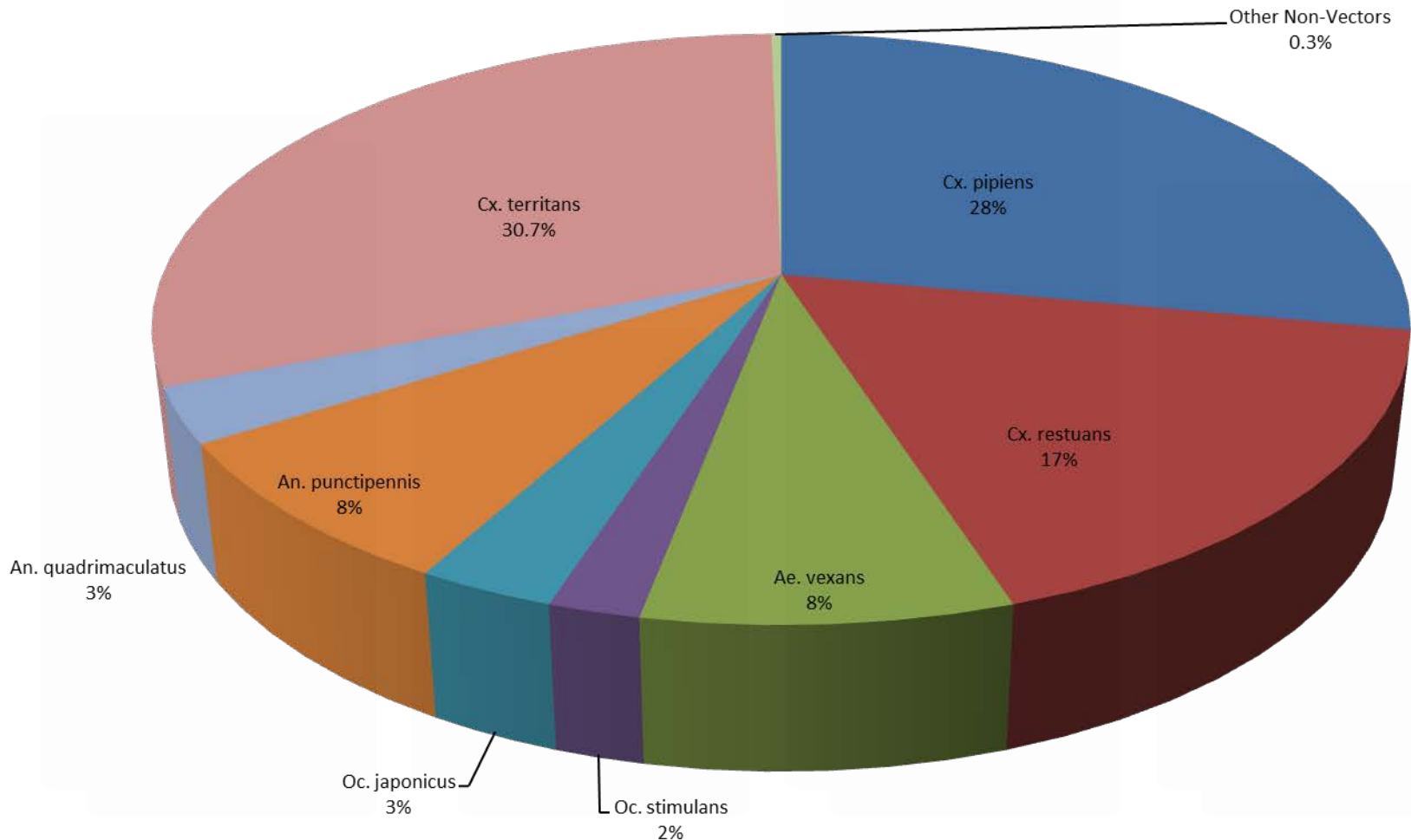
- West Nile Virus, Lyme Disease and Eastern Equine Encephalitis are reportable under the Ontario *Health Protection and Promotion Act*
- Comprehensive investigation conducted: travel history, known insect bites, symptoms etc.
- Risk levels are determined by evaluating human infection rates

Larval Surveillance & Identification

Larval surveillance: April to October

- 18,126 larvae were identified representing 21 different species

2016 Larval Species Composition



Control of Standing Water Sites

- Approximately 700 hectares (ha) of potential mosquito habitat
- In 2016, there were over 838 larvicide treatments at 261 monitored sites
- 11.8 hectares of standing water were treated in Middlesex-London
- VectoBac® 200G, VectoBac® 1200L and Vectolex®
- Storm Water Management Facilities promote optimal growth for mosquito larvae
- Environmentally Sensitive Areas- 300ha of Land/Bog/Marsh



Catch Basins and Pollution Control Plants

- Approximately 30,000 catch basins in London & 5,000 in surrounding municipalities are treated in 3 evenly spaced rounds
- 105,134 catch basins were treated during the 2016 season.
- Approximately 788 non-roadside catch basins treated
 - Non-roadside catch basins: parks, hospitals, private backyards & government buildings
- 7 Pollution Control Plants are treated
- Altosid® pellets, granules, and briquettes



Adult Mosquito Trapping

Middlesex-London Adult Surveillance: June 6 – September 26, 2016

- 23 CDC Light traps (4 to 6 feet off the ground)
- 23,317 adult mosquitoes collected
- 75% of all adult mosquitoes identified by Entomogen labs were WNV and EEE vector species
 - 4 WNV positive adult mosquito pools all *Cx. pipiens*

Ontario and Canada

- 211 positive mosquito pools identified in Ontario
- 341 positive mosquito pools identified in Canada



West Nile Virus Activity 2002-2016

West Nile Virus Positive Activity 2002- Present

Year	Human			Mosquito			Birds			Horses		
	MLHU	ONTARIO	CANADA	MLHU	ONTARIO	CANADA	MLHU	ONTARIO	CANADA	MLHU	ONTARIO	CANADA
2016	0	49	100	4	211	341	n/a	17	33	1	2	
2015	1	26	80	5	94	173	5	23	43	0	3	
2014	0	11	21	4	56	219	4	6	18		1	23
2013	4	53	115	4	198	318	9	36	89	0	15	57
2012	7	252	428	17	464	605	23	34	65	0	6	37
2011	2	72	101	11	278	285	9	49	22	0	4	7
2010	0	5	5	2	56	85	5	16	24	0	0	1
2009	1	4	13	0	14	37	1	6	10	0	1	6
2008	0	4	36	0	62	122	1	150	150	0	2	6
2007	1	15	2215	0	51	1682	2	79	139	0	0	109
2006	3	42	151	13	169	499	7	256	273	0	3	13
2005	3	101	225	12	291		6	300		0	5	
2004	0	14	25	2	69		6	250		0	9	
2003	1	89	1481	2	135		4	242		0	9	
2002	9	394	414	22	598		15	287		1	101	

A note on human data: ** Numbers include *all* cases, probable, confirmed, travel related and asymptomatic

Eastern Equine Encephalitis Activity 2009-2016

- No human cases ever reported in Canada
- No EEE activity in Middlesex-London
- EEE vectors are identified and tested
- Only 5 *Culiseta melanura* identified from traps in Middlesex-London

Lyme Disease Activity

- LD cases increasing in Ontario, gradual upward trend
- 142 ticks were submitted to the MLHU in 2016.
- 32 ticks (22%) were identified as *Ixodes scapularis* the LD vector in Ontario
- Three locally acquired probable cases of LD reported from within Middlesex-London
- Two travel related confirmed/probable cases of LD experienced by Middlesex-London residents

Aedes aegypti in Windsor area

- *Aedes aegypti* larvae identified during enhanced surveillance
- Larvae reared with three adults visually confirmed
- All sent for Zika testing- all tested negative

Aedes albopictus in Windsor area

- Four *Aedes albopictus* adults identified over 2 weeks
- All tested negative for Zika virus
- A single *Aedes albopictus* indentified previously identified in 2012
- Likely arrived due to cross border shipping

Questions?

