

West Nile Virus Bulletins

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These publications require knowledgeable interpretation and are intended primarily for health care professionals.

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Volume 1 / Issue 4 August 18, 2000

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Volume 1 / Issue 2 July 21, 2000

Volume 1 / Issue 1 July 7, 2000

Comments, questions and suggestions about surveillance results in this bulletin should be directed to :



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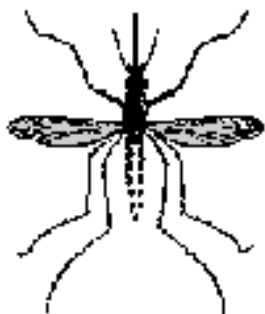
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West Nile Virus Bulletin

Disease Control Service
Public Health Branch

Volume 2 / Issue 11 October 30, 2001



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Summary of ONTARIO surveillance activities

Human surveillance	No confirmed cases in the year 2001
Mosquito Surveillance	As of Oct. 17, 1 pool of mosquitoes out of 606 has tested positive for WNV. The pool was collected on Aug. 31 from Peel Region. Findings from mosquito surveillance are available in the mosquito surveillance section
Dead Bird surveillance	As of Oct. 26th, a total of 4,748 dead birds have been sighted and/or collected in Ontario. Of these, 2,608 were collected and sent to Guelph for consideration, and of these, 1,720 were sent to Winnipeg for WNV testing. As of Oct. 26th, there are 121 confirmed WNV positive birds. 101 birds are American Crows and 20 birds are Blue Jays. The confirmed positive birds were found in Windsor-Essex (20), Chatham-Kent (3), Lambton (1), Middlesex-London (3), Niagara (1), Hamilton (4), Waterloo (1), Halton (7), Peel (17), Toronto (41), York Region (18), and Durham (5).

Canada

As of Oct 26th 2001, there have been 6,771 dead birds reported to the WNV Dead Bird Surveillance program for all Canadian provinces.

United States (as of Oct 26, 2001)

Human cases :

Forty-four human cases of WNV have reported in 2001.

Birds, mosquitoes, horses and other animals :

5,900 dead birds, 737 WNV-positive mosquito pools, and 282 horses have tested positive for West Nile Virus.

Data Source: Canadian Cooperative Wildlife Health Centre and Health Canada.

West Nile Virus Surveillance in Ontario

The purpose of the West Nile Virus (WNV) Bulletins is to provide a summary of the results of the various surveillance activities in Ontario for the current year. This issue will update WNV findings elsewhere in Canada and in the United States.

West Nile Virus Activities in Ontario for the Year 2001

Human Encephalitis Surveillance in Ontario

Health Canada has asked that key health-care providers, including family and emergency room physicians, infectious disease specialists and neurologists, monitor their patients for symptoms of West Nile Virus in 2001. These health-care professionals are being asked to promptly report any probable and confirmed cases of viral encephalitis to local/provincial public health authorities.

REMINDER

1. Physicians (Hospital, clinic, private practice)

- Send blood samples from suspect WNV patients to the Central Public Health Laboratory (CPHL) in Toronto for serological testing :
 - Central Public Health Laboratory
 - 81 Resources Road
 - Toronto, ON
 - M9P 3T1
- Report suspect WNV case immediately to local Medical Officer of Health
- Fax "**Patient Report Form**" to local Medical Officer of Health

2. Health Units :

- Report suspect WNV case immediately by telephone to Dr. Margaret Fearon
Dr. Margaret Fearon 416-235-5725 (pager: 416-715-4209)
(After hours duty officer: 416-605-6113)

- Report suspect WNV case immediately by telephone to Dr. Chuck Le Ber or Dr. Dean Middleton at the Ministry of Health and Long-Term Care, Public Health Branch.
Dr. Chuck Le Ber 416-327-7421
Dr. Dean Middleton 416-327-7422
After hours call (for the on-call physician) 416-235-3000

- Report suspect WNV case in RDIS under the disease "*viral meningitis/encephalitis*" as outlined in the April 27th, 2001 letter from Dr. Colin D'Cunha to all MOH's and Communicable Disease Coordinators regarding Enhanced Passive Human Surveillance for West Nile Encephalitis.

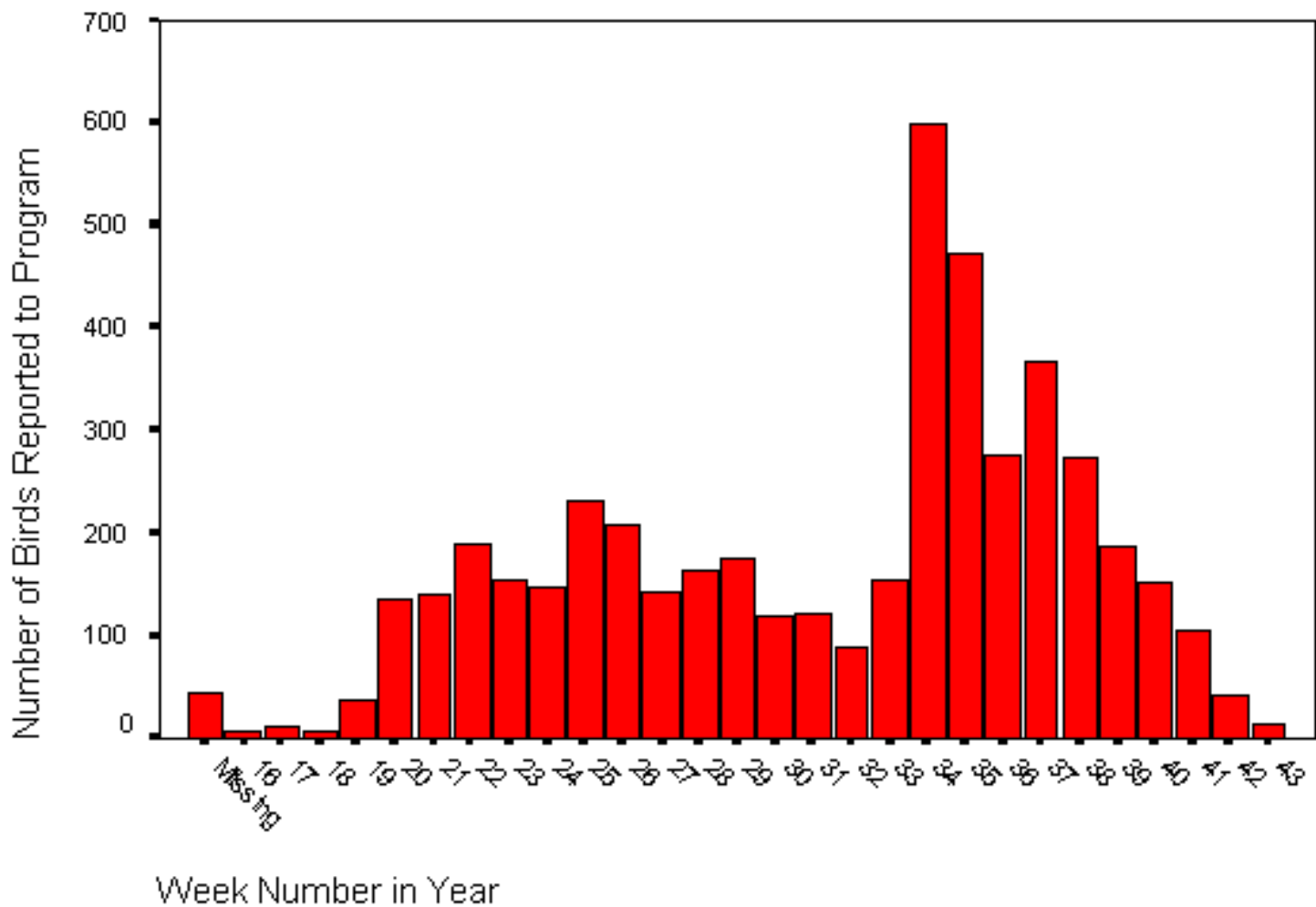
Dead Bird Surveillance in Ontario

This bulletin summarizes information up to Oct. 26 of the 43rd week of the Dead Bird Surveillance season (Week 43 = Oct 22 to 26, 2001). There have been a total of 4,748 reported dead bird sightings and/or submissions. Of these 4,748 birds, 2,608 were picked up and sent to the lab in Guelph for WNV testing ('pick-ups'), of which 1,720 were submitted for testing at the national laboratory in Winnipeg ('Submissions'). Maps stating the number of dead bird submissions to the lab will be provided weekly to [health units](#).

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Figure 1. Ontario Reported Number of WNV Surveillance Program Dead Birds
October 26, 2001 (N= 4,748*)

* Omitted from graph: 3 dead birds reported prior to season



Data: Canadian Cooperative Wildlife Health Centre, Health Canada August 30, 2001

Note : Week 16 = April 16-20, 2001
Week 43 = Oct 22-26, 2001

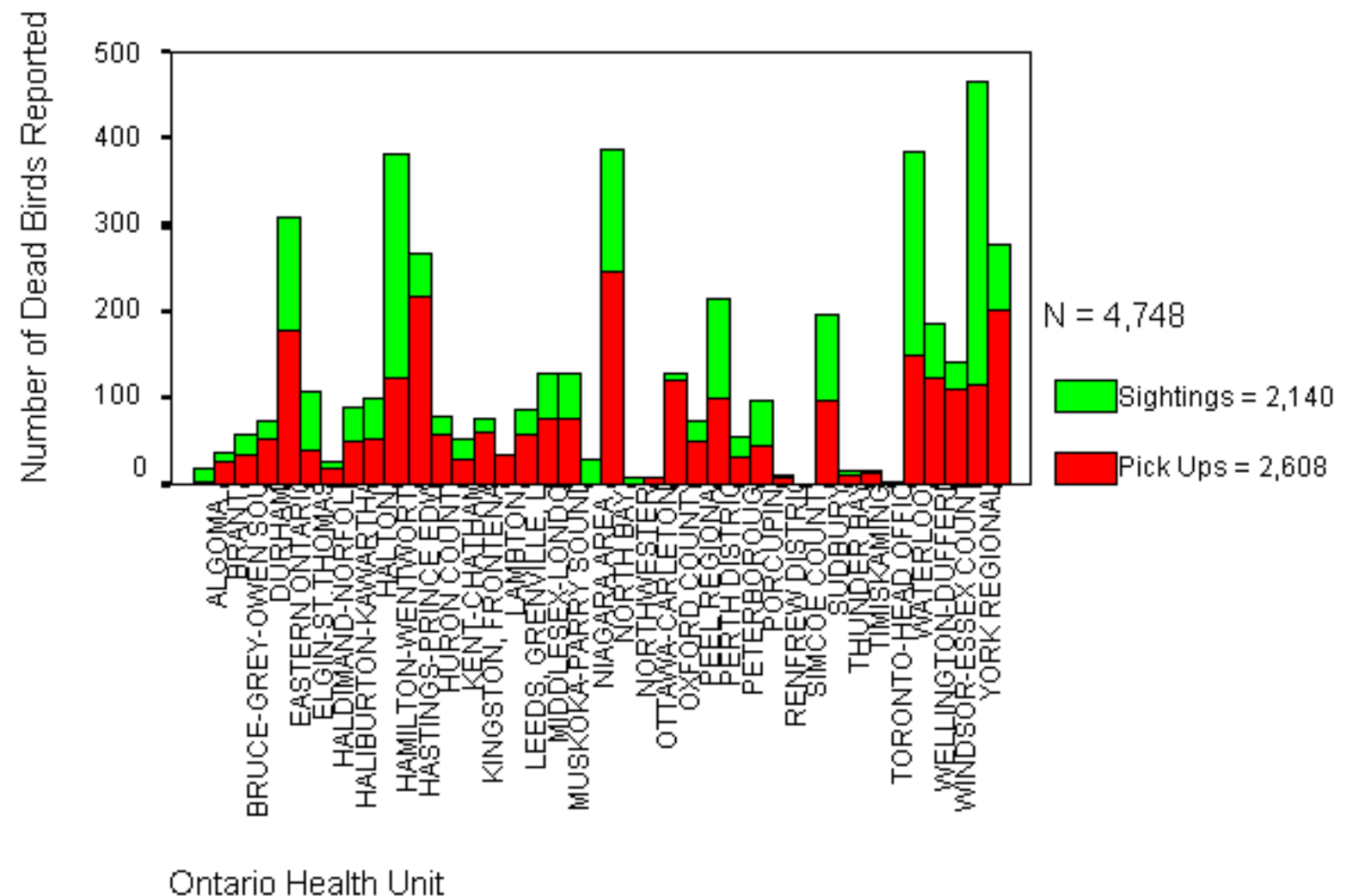
Figure 2. Types of Ontario Dead Birds Reported in 2001 Season as of October 26, 2001

BIRDS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	American Crow	2546	53.6	53.6	53.6
	Blue Jay	1716	36.1	36.1	89.8
	Other Birds	462	9.7	9.7	99.5
	Common Raven	23	.5	.5	100.0
	Gray Jay	1	.0	.0	100.0
	Total	4748	100.0	100.0	

Figure 3. Total Number of Dead Bird Reports in 2001 by Ontario Health Units as of Oct 26, 2001

Note** 'PickUps' are health unit submissions to the lab in Guelph, whereas 'Submissions' refer to dead birds sent to the lab in Winnipeg for Federal WNV Testing.



Mosquito Surveillance in Ontario

A pilot program for mosquito surveillance was initiated in 6 heath units in early August. These health units include Niagara, Hamilton, Toronto, Hastings and Prince Edward and Eastern Ontario. Mosquito surveillance began in health units where birds were confirmed positive for WNV (see results below).

Week 35 - Aug. 27 - 31
Week 43 - Oct. 22 - 26

* identifications are still in progress
** preliminary results based on subsampling of some of the large samples. Final values are not expected to differ significantly from the values presented.

South-West Ontario Region

Health Unit	Week	HU	<i>Total Mosquito Count</i>	no. traps	<i>proportion Culex pipiens**</i>	<i>proportion Aedes vexans**</i>
Chatham	35	CHK	7	3	*	*
	36	CHK	61	3	*	*
	37	CHK 1	126	5	0.071	0.262
	37	CHK 2	53	8	0.048	0.214
	38	CHK	45	7	0.111	0.400
Lambton	38	LAM	82	5	0.139	0.306
	40	LAM	170	5	0.029	0.565
Middlesex	38	MSL	7	1	0.143	0.143
Windsor	35	WEC1	378	10	0.000	0.606
	35	WEC2	1259	15	0.065	0.511
	35	WEC3	868	16	moldy	moldy
	36	WEC1	579	23	*	*
	36	WEC2	383	20	0.031	0.230
	36	WEC3	1996	20	*	*
	37	WEC 1	3860	23	0.169	0.295
	37	WEC 2	1752	20	0.071	0.340
	37	WEC 3	4451	23	0.303	0.336
	38	WEC 1	1391	18	*	*
	38	WEC 2	1533	20	*	*
	38	WEC 3	1348	18	*	*
	39	WEC	22	8	0.045	0.409
	40	WEC 1	396	17	0.093	0.386
	40	WEC 2	2218	16	0.035	0.401
	40	WEC 3	133	11	0.227	0.364
	41	WEC 1	476	17	0.085	0.171
	41	WEC 2	318	18	*	*
	42	WEC 1	179	12	0.073	0.274
	42	WEC 2	46	13	0.000	0.565
	43	WEC 1	176	15	0.047	0.326
	43	WEC 2	91	10	0.156	0.313

Central-West Ontario Region

Health Unit	Week	HU	<i>Total Mosquito Count</i>	no. traps	<i>proportion Culex pipiens**</i>	<i>proportion Aedes vexans**</i>
Halton	35	HAL1	375	12	0.056	0.003
	35	HAL2	164	9	0.228	0.167
	36	HAL1	73	16	0.164	0.233
	36	HAL2	86	17	0.015	0.262
	37	HAL 1	215	17	0.242	0.283
	37	HAL 2	156	16	0.032	0.397
	38	HAL 1	407	10	0.120	0.335
	38	HAL 2	52	9	0.115	0.192
	39	HAL 1	4	8	0.500	0.000
	39	HAL 2	4	4	*	*
	40	HAL	111	17	0.090	0.380
	41	HAL	36	10	0.250	0.125
Hamilton	35	HAM	84	3	0.131	0.095
	36	HAM	10	2	0.500	0.333
	37	HAM	56	4	0.125	0.000
	38	HAM	69	2	0.116	0.174
	39	HAM	3	2	0.333	0.000
	40	HAM	30	3	0.100	0.200
Niagara	31	NIA	136	5	0.235	0.169
	32	NIA	16	2	0.313	0.188
	33	NIA	21	3	0.667	0.190
	34	NIA	58	2	0.000	0.103
	35	NIA	99	3	0.061	0.162
	36	NIA	77	3	0.052	0.143
	37	NIA	105	3	0.132	0.368
	39	NIA	19	3	*	*

Central-East Ontario Region

Health Unit	Week	HU	Total Mosquito Count	no. traps	<i>proportion Culex pipiens**</i>	<i>proportion Aedes vexans**</i>
Durham	38	DUR	28	5	0.333	0.381
	40	DUR	25	5	0.111	0.111
Peel	35	PEE	243	9	0.188	0.023
	36	PEE	144	12	0.191	0.217
	37	PEE 1	205	10	0.382	0.147
	37	PEE 2	69	8	*	*
	38	PEE 1	108	9	0.380	0.093
	38	PEE 2	48	10	0.475	0.150
	39	PEE	2	5	0.500	0.000
	40	PEE 1	21	9	0.524	0.095
	40	PEE 2	35	7	0.086	0.057
	41	PEE	22	8	0.227	0.136
	42	PEE	5	8	0.600	0.000
Toronto	33	TOR	182	3	0.055	0.011
	34	TOR	128	3	0.047	0.156
	35	TOR	57	3	0.193	0.211
	36	TOR1	111	12	0.200	0.120
	36	TOR2	59	6	0.085	0.000
	37	TOR 1	131	8	0.069	0.092
	37	TOR 2	73	7	0.342	0.123
	37	TOR(ZOO)1	70	2	0.029	0.600
	37	TOR(ZOO)2	7	2	0.000	0.714
	38	TOR 1	179	8	0.132	0.321
	38	TOR 2	31	8	0.161	0.290
	38	TOR(ZOO)1	22	2	0.000	0.364
	38	TOR(ZOO)2	28	2	0.071	0.607
York Region	40	YRK	13	5	0.000	0.154
	38	YRK 1	42	5	0.286	0.048
	38	YRK 2	34	5	0.088	0.235

Eastern Ontario Region

Health Unit	Week	HU	Total Mosquito Count	no. traps	<i>proportion Culex pipiens**</i>	<i>proportion Aedes vexans**</i>
Eastern Ontario	33	EOH	28	2	0.536	0.107
	34	EOH	36	3	0.083	0.000
	35	EOH	7	3	0.143	0.000
	36	EOH	2	3	0.000	0.000
	37	EOH	18	3	0.056	0.222
Hastings	32	HPE	259	3	0.000	0.247
	33	HPE	78	3	0.000	0.038
	34	HPE	377	4	moldy	moldy
	35	HPE	29	3	0.103	0.000
	36	HPE	14	4	*	*
	37	HPE	160	4	0.000	0.363
	38	HPE	2	5	0.000	0.000
Leeds	32	LEE	96	4	0.021	0.052
	34	LEE	7	2	0.143	0.000
	35	LEE	34	3	0.000	0.059
	36	LEE	50	3	*	*
	37	LEE	13	1	0.077	0.308

Summary of WNV Mosquito Testing

As of Oct. 17, 1 pool of mosquitoes out of 606 has tested positive for WNV. The pool of *Culex pipiens* was collected on Aug. 31 from Peel Region.

Total Number of Pools Tested	606	
Total Number of Mosquitoes Tested	3951	
Total Number of Species Tested	23 (+ Unidentifiable)	
Total Number of Culex Tested	1457	
Total Number of Culex Pools Tested	306	
Number of Culex tested by species	C. pipiens	359
	C. pipiens / restuans	18
	C. restuans	145
	C. salinarius	5
	C. tarsalis	3
	C. territans	490
	C. spp.	436
	C. erraticus	1
		1457

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Other News

Worldwide Geographic Distribution

West Nile Virus has been described worldwide and is no longer limited to Africa and Eurasia.

North American Geographic Distribution

The American media has paid much attention to state health departments and local units with respect to their choices regarding the spraying of chemical pesticides. For more information on US protocols for larviciding and spraying, please refer to US State websites.

Figure 4. Number of birds, mosquito pools, horses and humans that have tested positive for WNV in the USA, 2001.

State	Birds	Mosquito Pools	Hors es	Humans
Alabama	2		2	
Arkansas	1			
Connecticut	427	26	8	5
D.C.	240			
Florida	409	17	166	11
Georgia	335		30	1
Iowa	1			
Illinois	142	10		
Indiana	39			
Kentucky	38	1	1	
Louisiana	5		2	1
Massachusetts	1096	26	31	
Maryland	449	18		6
Maine	4			
Mighigan	44			
Missouri	5			
Mississippi			4	
North Carolina	8		2	1
New Hampshire	83	3		
New Jersey	995	318	12	6
New York	632	255	15	11
Ohio	226	8		
Pennsylvania	301	40	6	2
Rhode Island	212	14		
Tennessee	13			
Virginia	191	1	3	
Wisconsin	2			
Total	5900	737	282	44

Sourced from Health Canada, October 12, 2001

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U.S. National Maps :

Maps of the United States WNV Surveillance Programs can be accessed through the United States Geological Survey: Center for Integration of Natural Disaster Information (CINDI) website : http://cindi.usgs.gov/hazard/event/west_nile/west_nile.html

Maps

[Dead Birds Submitted for West Nile Virus Diagnosis by Health Unit in Ontario as of October 31, 2001.](#) (MS Word)

[Dead Birds Submitted for West Nile Virus Diagnosis by Health Region in Canada as of October 31, 2001.](#) (MS Word)

West Nile Virus Resource Websites

Canada :

Canadian Cooperative Wildlife Health Centre
<http://wildlife.usask.ca/english/frameWestNile.htm> (Aug, 2001)

Canadian Food Inspection Agency
<http://www.cfia-acia.agr.ca/english/ppc/science/surv/wnvsure.shtml> (June, 2001)

Health Canada
<http://www.hc-sc.gc.ca/hpb/lcdc/bid/wnv/index.html#top> (June 4,2001)

New Brunswick Health and Wellness
<http://www.gnb.ca/0053/en/issues/wnvirus.htm> (June 4, 2001)

Pest Management Regulatory Agency (PMRA)
<http://www.hc-sc.gc.ca/pmra-arla/english/index-e.html> (June 8, 2001)

Quebec Santé et Services Sociaux (French)
<http://www.msss.gouv.qc.ca/f/sujets/index.htm> (May 23, 2001)

Region of Peel: West Nile Virus Homepage
<http://www.peel-bugbite.ca> (June 18, 2001)

International :

Hubálek, Z. and J. Halouzka. 1999. West Nile Fever - a reemerging mosquito-borne viral disease in Europe. Emerging Infectious Diseases 5(5): 643-650.
<http://www.cdc.gov/ncidod/eid/vol5no5/hubalek.htm>

Reuters Health. 2001. UK Biotech Firm Targets West Nile Virus. Reuters Medical News for the Professional.
<http://id.mescap.com/reuters/prof/2001/05/05.25/20010524drqd003.html>

Sopel, J. West Nile fever hits France. BBC News Report, Wed, 11 Oct 2000, 13:21 GMT 14:21 UK [edited]
http://news.bbc.co.uk/hi/english/world/europe/newsid_967000/967048.stm

U.S.A. :

United States Geological Survey: Center for Integration of Natural Disaster Information (CINDI)
http://cindi.usgs.gov/hazard/event/west_nile/west_nile.html (June 15, 2001)

Connecticut Department of Environmental Protection
<http://dep.state.ct.us/mosquito/index.asp> (June 4,2001)

Cornell Environmental Risk Assessment Program: West Nile Virus
<http://www.cfe.cornell.edu/risk/WNVmainpage.html> (May 25, 2001)

District of Columbia Department of Health
<http://www.dchealth.com/> (June 4,2001)

Maryland Community and Public Administration

http://edcp.org/html/wn_surv.html (July 4, 2001)
New York City Department of Health, West Nile Virus Information
<http://www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html> (June 4, 2001)
New Jersey Department of Health
<http://www.state.nj.us/health/cd/westnile/enceph.htm> (July 4, 2001)
Penn State College of Agricultural Sciences
<http://www.pested.psu.edu/spWestNile.html> (July 4, 2001)
Rhode Island Department of Health
<http://www.uri.edu/research/eee/wnv.html> (July 4, 2001)
Vermont Department of Health
<http://www.state.vt.us/health/wnile.htm> (June 4, 2001)

Acknowledgements

The contribution of the following agencies and individuals in the publication of the *West Nile Virus Bulletin* is greatly appreciated :

Ontario Ministry of Health and Long-Term Care: Public Health Branch (Dr. Colin D'Cunha, Dr. Charles Le Ber, Dr. Dean Middleton)
Canadian Cooperative Wildlife Health Centre (Dr. Ian Barker, Ron Templeman)
Health Canada (Dr. Peter Buck, Rob Meyers)

FOR MORE INFORMATION

Comments, questions and suggestions about surveillance results in this bulletin should be directed to :



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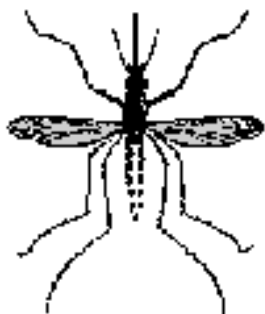
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Summary of ONTARIO surveillance activities

Human surveillance

No confirmed cases in the year 2001

Mosquito Surveillance

As of Oct. 17, 1 pool of mosquitoes out of 606 has tested positive for WNV. The pool was collected on Aug. 31 from Peel Region. Findings from mosquito surveillance are available in the [mosquito surveillance section](#)

Dead Bird surveillance

As of Oct. 11th, a total of 4,563 dead birds have been sighted and/or collected in Ontario. Of these, 2,468 were collected and sent to Guelph for consideration, and of these, 1,603 were sent to Winnipeg for WNV testing. As of Oct. 15th, there are 109 confirmed WNV positive birds. 90 birds are American Crows and 19 birds are Blue Jays. The confirmed positive birds were found in Windsor-Essex (18), Chatham-Kent (3), Lambton (1), Middlesex-London (3), Niagara (1), Hamilton (4), Waterloo (1), Halton (5), Peel (12), Toronto (40), York Region (16), and Durham (5).

Canada

As of Oct 11th 2001, there have been 6,543 dead birds reported to the WNV Dead Bird Surveillance program for all Canadian provinces.

United States (as of Oct 1, 2001)

Human cases :

Thirty-eight human cases of WNV have reported in 2001.

Birds, mosquitoes, horses and other animals :

5,288 dead birds, 726 WNV-positive mosquito pools, and 188 horses have tested positive for West Nile Virus.

Data Source: Canadian Cooperative Wildlife Health Centre and Health Canada.

West Nile Virus Surveillance in Ontario

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West Nile Virus Activities in Ontario for the Year 2001

Human Encephalitis Surveillance in Ontario

Health Canada has asked that key health-care providers, including family and emergency room physicians, infectious disease specialists and neurologists, monitor their patients for symptoms of West Nile Virus in 2001. These health-care professionals are being asked to promptly report any probable and confirmed cases of viral encephalitis to local/provincial public health authorities.

REMINDER

1. Physicians (Hospital, clinic, private practice)

- Send blood samples from suspect WNV patients to the Central Public Health Laboratory (CPHL) in Toronto for serological testing :
 - Central Public Health Laboratory
 - 81 Resources Road
 - Toronto, ON
 - M9P 3T1
- Report suspect WNV case immediately to local Medical Officer of Health
- Fax "**Patient Report Form**" to local Medical Officer of Health

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- Report suspect WNV case immediately by telephone to Dr. Margaret Fearon

Dr. Margaret Fearon	416-235-5725 (pager: 416-715-4209)
	(After hours duty officer: 416-605-6113)
- Report suspect WNV case immediately by telephone to Dr. Chuck Le Ber or Dr. Dean Middleton at the Ministry of Health and Long-Term Care, Public Health Branch.

Dr. Chuck Le Ber	416-327-7421
Dr. Dean Middleton	416-327-7422
After hours call (for the on-call physician)	416-235-3000
- Report suspect WNV case in RDIS under the disease "*viral meningitis/encephalitis*" as outlined in the April 27th, 2001 letter from Dr. Colin D'Cunha to all MOH's and Communicable Disease Coordinators regarding Enhanced Passive Human Surveillance for West Nile Encephalitis.

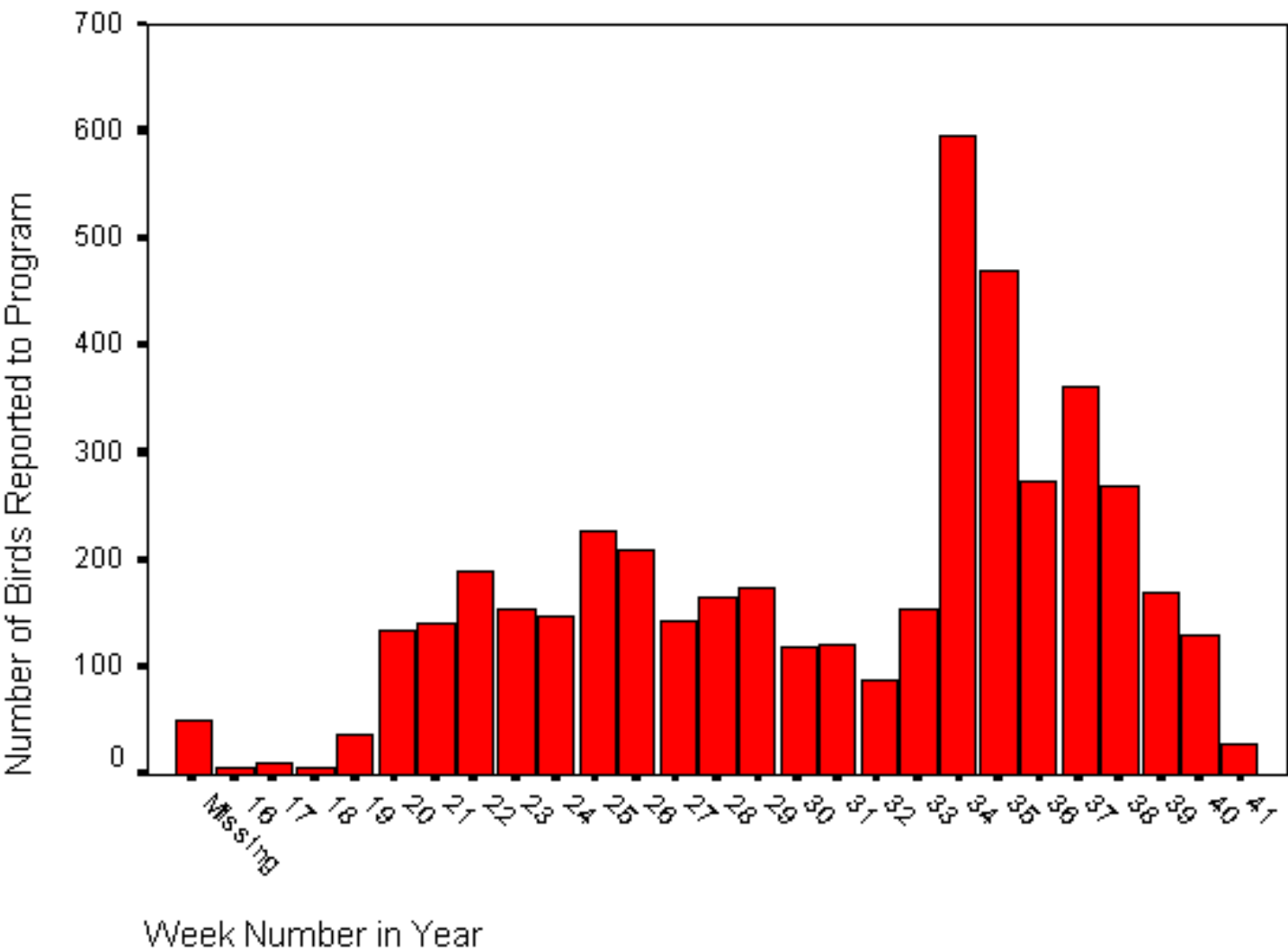
Dead Bird Surveillance in Ontario

This bulletin summarizes information up to Oct. 11 of the 41st week of the Dead Bird Surveillance season (Week 41 = Oct 8 to 12, 2001). There have been a total of 4,563 reported dead bird sightings and/or submissions. Of these 4,563 birds, 2,468 were picked up and sent to the lab in Guelph for WNV testing ('pick-ups'), of which 1,603 were submitted for testing at the national laboratory in Winnipeg ('Submissions'). Maps stating the number of dead bird submissions to the lab will be provided weekly to [health units](#).

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Figure 1. Ontario Reported Number of WNV Surveillance Program Dead Birds
October 11, 2001 (N= 4,563*)

* Omitted from graph: 3 dead birds reported prior to season



Data: Canadian Cooperative Wildlife Health Centre, Health Canada August 30, 2001

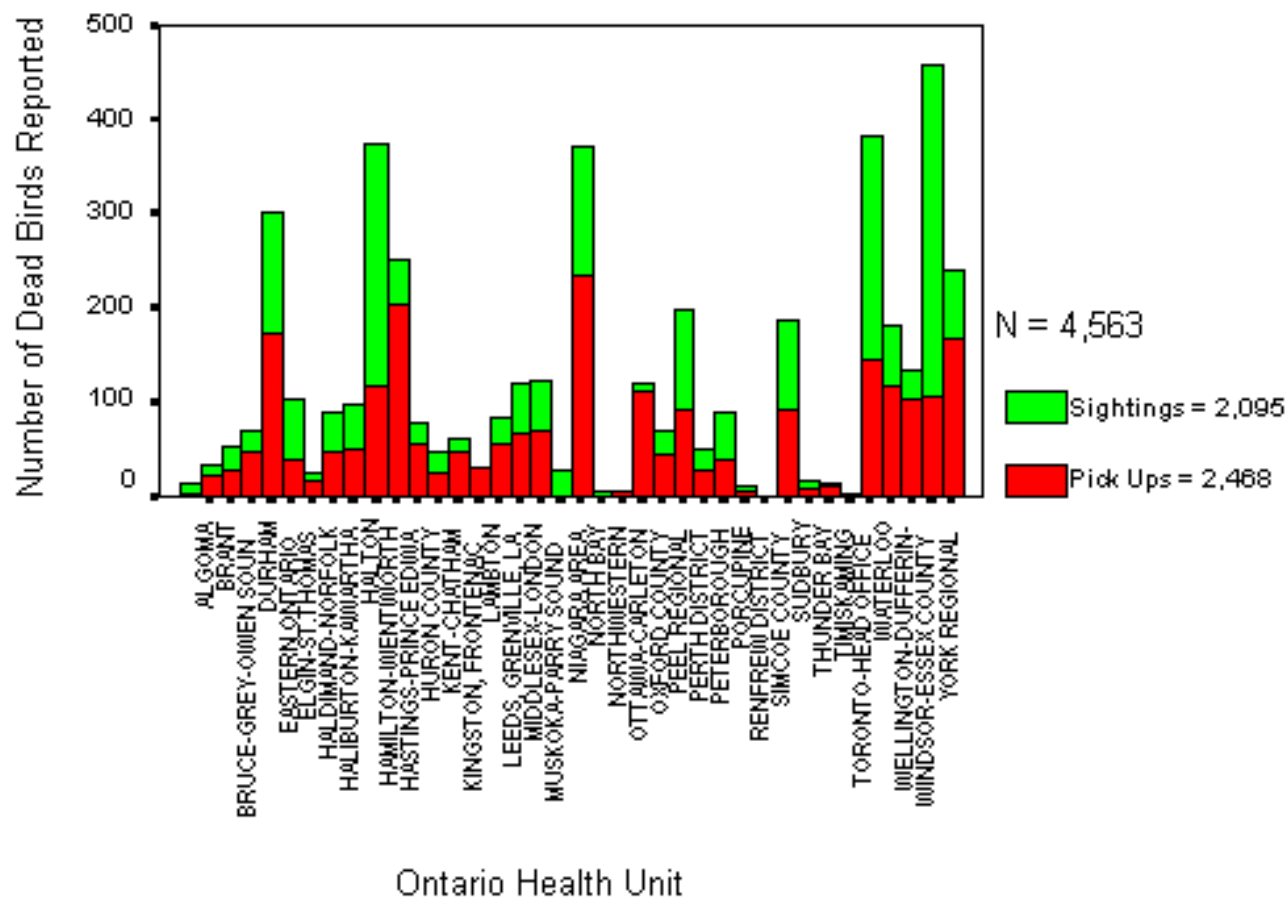
Note : Week 16 = April 16-20, 2001
Week 40 = Oct 1-7, 2001

Figure 2. Types of Ontario Dead Birds Reported in 2001 Season as of October 11, 2001

BIRDS					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	American Crow	2463	54.0	54.0	54.0
	Blue Jay	1624	35.6	35.6	89.6
	Common Raven	23	.5	.5	90.1
	Gray Jay	1	.0	.0	90.1
	Other Birds	452	9.9	9.9	100.0
	Total	4563	100.0	100.0	

Figure 3. Total Number of Dead Bird Reports in 2001 by Ontario Health Units as of Oct 11, 2001

Note** 'PickUps' are health unit submissions to the lab in Guelph, whereas 'Submissions' refer to dead birds sent to the lab in Winnipeg for Federal WNV Testing.



Data Source : Canadian Cooperative Wildlife Health Centre & Health Canada (Oct 11, 01)

Mosquito Surveillance in Ontario

A pilot program for mosquito surveillance was initiated in 6 health units in early August. These health units include Niagara, Hamilton, Toronto, Hastings and Prince Edward and Eastern Ontario. Mosquito surveillance began in health units where birds were confirmed positive for WNV (see results below).

Week 35 - Aug. 27 - 31

Week 41 - Oct. 8 - 12

South-West Ontario Region

Health Unit	Week	HU	<i>Total Mosquito Count</i>	no. traps	<i>proportion Culex pipiens</i>	<i>proportion Aedes vexans</i>
Chatham	35	CHK	7	3	*	*
	36	CHK	61	3	*	*
	37	CHK 1	126	5	0.071	0.262
	37	CHK 2	53	8	0.048	0.214
	38	CHK	45	7	0.111	0.400
Lambton	38	LAM	82	5	0.139	0.306
	40	LAM	170	5	0.029	0.565
Middlesex	38	MSL	7	1	0.143	0.143
Windsor	35	WEC 1	378	10	0.000	0.606
	35	WEC 2	1259	15	0.065	0.511
	35	WEC 3	868	16	mod y	mod y
	36	WEC 1	579	23	*	*
	36	WEC 2	383	20	0.031	0.230
	36	WEC 3	1996	20	*	*
	37	WEC 1	3860	23	0.169	0.295
	37	WEC 2	1752	20	0.071	0.340
	37	WEC 3	4451	23	0.303	0.336
	38	WEC 1	1391	18	*	*
	38	WEC 2	1533	20	*	*
	38	WEC 3	1348	18	*	*
	39	WEC	22	8	0.045	0.409
	40	WEC 1	396	17	0.093	0.386
	40	WEC 2	2218	16	0.035	0.401
	40	WEC 3	133	11	0.227	0.364
	41	WEC	476	17	0.085	0.171

Central-West Ontario Region

Health Unit	Week	HU	Total Mosquito Count	no. traps	proportion Culex pipiens	proportion Aedes vexans
Halton	35	HAL1	375	12	0.056	0.003
	35	HAL2	164	9	0.228	0.167
	36	HAL1	73	16	0.164	0.233
	36	HAL2	86	17	0.015	0.262
	37	HAL 1	215	17	0.242	0.283
	37	HAL 2	156	16	0.032	0.397
	38	HAL 1	407	10	0.120	0.335
	38	HAL 2	52	9	0.115	0.192
	39	HAL 1	4	8	0.500	0.000
	39	HAL 2	4	4	*	*
	40	HAL	111	17	0.090	0.380
	41	HAL	36	10	0.250	0.125
Hamilton	35	HAM	84	3	0.131	0.095
	36	HAM	10	2	0.500	0.333
	37	HAM	56	4	0.125	0.000
	38	HAM	69	2	0.116	0.174
	39	HAM	3	2	0.333	0.000
	40	HAM	30	3	0.100	0.200
Niagara	31	NIA	136	5	0.235	0.169
	32	NIA	16	2	0.313	0.188
	33	NIA	21	3	0.667	0.190
	34	NIA	58	2	0.000	0.103
	35	NIA	99	3	0.061	0.162
	36	NIA	77	3	0.052	0.143
	37	NIA	105	3	0.132	0.368
	39	NIA	19	3	*	*

Central-East Ontario Region

Health Unit	Week	HU	Total Mosquito Count	no. traps	<i>proportion Culex pipiens</i>	<i>proportion Aedes vexans</i>
Durham	38	DUR	28	5	0.333	0.381
	40	DUR	25	5	0.111	0.111
Peel	35	PEE	243	9	0.188	0.023
	36	PEE	144	12	0.191	0.217
	37	PEE 1	205	10	0.382	0.147
	37	PEE 2	69	8	*	*
	38	PEE 1	108	9	0.380	0.093
	38	PEE 2	48	10	0.475	0.150
	39	PEE	2	5	0.500	0.000
	40	PEE 1	21	9	0.524	0.095
	40	PEE 2	35	7	0.086	0.057
	41	PEE	22	8	0.227	0.136
Toronto	33	TOR	182	3	0.055	0.011
	34	TOR	128	3	0.047	0.156
	35	TOR	57	3	0.193	0.211
	36	TOR1	111	12	0.200	0.120
	36	TOR2	59	6	0.085	0.000
	37	TOR 1	131	8	0.069	0.092
	37	TOR 2	73	7	0.342	0.123
	37	TOR(ZOO)1	70	2	0.029	0.600
	37	TOR(ZOO)2	7	2	0.000	0.714
	38	TOR 1	179	8	0.132	0.321
	38	TOR 2	31	8	0.161	0.290
	38	TOR(ZOO)1	22	2	0.000	0.364
	38	TOR(ZOO)2	28	2	0.071	0.607
York Region	40	YRK	13	5	0.000	0.154
	38	YRK 1	42	5	0.286	0.048
	38	YRK 2	34	5	0.088	0.235

Eastern Ontario Region

Health Unit	Week	HU	Total Mosquito Count	no. traps	<i>proportion Culex pipiens</i>	<i>proportion Aedes vexans</i>
Eastern Ontario	33	EOH	28	2	0.536	0.107
	34	EOH	36	3	0.083	0.000
	35	EOH	7	3	0.143	0.000
	36	EOH	2	3	0.000	0.000
	37	EOH	18	3	0.056	0.222
Hastings	32	HPE	259	3	0.000	0.247
	33	HPE	78	3	0.000	0.038
	34	HPE	377	4	mol'd y	mol'd y
	35	HPE	29	3	0.103	0.000
	36	HPE	14	4	*	*
	37	HPE	160	4	0.000	0.363
	38	HPE	2	5	0.000	0.000
Leeds	32	LEE	96	4	0.021	0.052
	34	LEE	7	2	0.143	0.000
	35	LEE	34	3	0.000	0.059
	36	LEE	50	3	*	*
	37	LEE	13	1	0.077	0.308

Summary of WNV Mosquito Testing

As of Oct. 17, 1 pool of mosquitoes out of 606 has tested positive for WNV. The pool of *Culex pipiens* was collected on Aug. 31 from Peel Region.

Total Number of Pools Tested	606	
Total Number of Mosquitoes Tested	3951	
Total Number of Species Tested	23 (+ Unidentifiable)	
Total Number of Culex Tested	1457	
Total Number of Culex Pools Tested	306	
Number of Culex tested by species	C. pipiens	359
	C. pipiens / restuans	18
	C. restuans	145
	C. salinarius	5
	C. tarsalis	3
	C. territans	490
	C. spp.	436
	C. erraticus	1
		1457

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Other News

Worldwide Geographic Distribution

West Nile Virus has been described worldwide and is no longer limited to Africa and Eurasia.

North American Geographic Distribution

The American media has paid much attention to state health departments and local units with respect to their choices regarding the spraying of chemical pesticides. For more information on US protocols for larviciding and spraying, please refer to US State websites.

Figure 4. Number of birds, mosquito pools, horses and humans that have tested positive for WNV in the USA, 2001.

State	Birds	Mosquito Pools	Hors es	Humans
Alabama	2		2	
Arkansas	1			
Connecticut	388	22	8	5
D.C.	240			
Florida	276	17	112	9
Georgia	236		7	1
Iowa	1			
Illinois	124	10		
Indiana	30			
Kentucky	30		1	
Louisiana	3		2	
Massachusetts	1042	26	23	
Maryland	420	18		5
Maine	4			
Mighigan	44			
Missouri	5			
Mississippi			4	
North Carolina	6		2	1
New Hampshire	83	3		
New Jersey	955	318	10	4
New York	604	252	13	11
Ohio	168	8		
Pennsylvania	250	37	2	2
Rhode Island	209	14		
Tennessee	13			
Virginia	152	1	2	
Wisconsin	2			
Total	5288	726	188	38

Sourced from Health Canada, October 12, 2001

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U.S. National Maps :

Maps of the *United States WNV Surveillance Programs* can be accessed through the United States Geological Survey: Center for Integration of Natural Disaster Information (CINDI) website : http://cindi.usgs.gov/hazard/event/west_nile/west_nile.html

Maps

[Dead Birds Submitted for West Nile Virus Diagnosis by Health Unit in Ontario as of October 15, 2001.](#) (MS Word)

[Dead Birds Submitted for West Nile Virus Diagnosis by Health Region in Canada as of October 15, 2001.](#) (MS Word)

West Nile Virus Resource Websites

Canada :

Canadian Cooperative Wildlife Health Centre
<http://wildlife.usask.ca/english/frameWestNile.htm> (Aug, 2001)
 Canadian Food Inspection Agency
<http://www.cfia-acia.agr.ca/english/ppc/science/surv/wnvsure.shtml> (June, 2001)
 Health Canada
<http://www.hc-sc.gc.ca/hpb/lcdc/bid/wnv/index.html#top> (June 4,2001)
 New Brunswick Health and Wellness
<http://www.gnb.ca/0053/en/issues/wnvirus.htm> (June 4, 2001)
 Pest Management Regulatory Agency (PMRA)
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 Connecticut Department of Environmental Protection
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 Cornell Environmental Risk Assessment Program: West Nile Virus
<http://www.cfe.cornell.edu/risk/WNVmainpage.html> (May 25, 2001)
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http://edcp.org/html/wn_surv.html (July 4, 2001)
New York City Department of Health, West Nile Virus Information
<http://www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html> (June 4, 2001)
New Jersey Department of Health
<http://www.state.nj.us/health/cd/westnile/enceph.htm> (July 4, 2001)
Penn State College of Agricultural Sciences
<http://www.pested.psu.edu/spWestNile.html> (July 4, 2001)
Rhode Island Department of Health
<http://www.uri.edu/research/eee/wnv.html> (July 4, 2001)
Vermont Department of Health
<http://www.state.vt.us/health/wnile.htm> (June 4, 2001)

Acknowledgements

The contribution of the following agencies and individuals in the publication of the *West Nile Virus Bulletin* is greatly appreciated :

Ontario Ministry of Health and Long-Term Care: Public Health Branch (Dr. Colin D'Cunha, Dr. Charles Le Ber, Dr. Dean Middleton)
Canadian Cooperative Wildlife Health Centre (Dr. Ian Barker, Ron Templeman)
Health Canada (Dr. Peter Buck, Rob Meyers)

FOR MORE INFORMATION

Comments, questions and suggestions about surveillance results in this bulletin should be directed to :



Dr. Dean Middleton,
Veterinary Consultant,
Disease Control Service,
Tel: 416-327-7422,
E-mail: dean.middleton@moh.gov.on.ca

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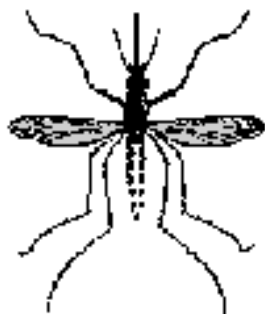


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West Nile Virus Bulletin

Disease Control Service
Public Health Branch

Volume 2 / Issue 9 October 2, 2001



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Summary of ONTARIO surveillance activities

Human surveillance

No confirmed cases in the year 2001

Mosquito Surveillance

A pilot program for mosquito surveillance was initiated in 6 health units in early August. Windsor-Essex, Chatham-Kent, Lambton, Middlesex-London, Halton, Hamilton, Peel, Toronto, York Region and Durham are also trapping mosquitoes because of WNV activity. Results of mosquito surveillance will be available in the next bulletin.

Dead Bird surveillance

As of Oct. 1st, a total of 4,300 dead birds have been sighted and/or collected in Ontario. Of these, 2,284 were collected and sent to Guelph for consideration, and of these, 1,458 were sent to Winnipeg for WNV testing. As of Oct. 2nd, there are 76 confirmed and 1 presumptive WNV positive birds. 64 birds are American Crows and 13 birds are Blue Jays. The confirmed positive birds were found in Windsor-Essex (15), Chatham-Kent (3), Lambton (1), Middlesex-London (3), Niagara (1), Hamilton (3), Halton (3), Peel (12), Toronto (25), York Region (7), and Durham (3). The presumptive positive bird was found in Waterloo (1).

Canada

As of Oct 1st 2001, there have been 6,172 dead birds reported to the WNV Dead Bird Surveillance program for all Canadian provinces.

United States (as of Oct 1, 2001)

Human cases :

Thirty human cases of WNV have reported in 2001.

Birds, mosquitoes, horses and other animals :

4,395 dead birds, 18 live birds, 651 WNV-positive mosquito pools, and 130 horses have tested positive for West Nile Virus.

Data Source: Canadian Cooperative Wildlife Health Centre and Health Canada.

West Nile Virus Surveillance in Ontario

The purpose of the West Nile Virus (WNV) Bulletins is to provide a summary of the results of the various surveillance activities in Ontario for the current year. This issue will update WNV findings elsewhere in Canada and in the United States.

West Nile Virus Activities in Ontario for the Year 2001

Human Encephalitis Surveillance in Ontario

Health Canada has asked that key health-care providers, including family and emergency room physicians, infectious disease specialists and neurologists, monitor their patients for symptoms of West Nile Virus in 2001. These health-care professionals are being asked to promptly report any probable and confirmed cases of viral encephalitis to local/provincial public health authorities.

REMINDER

1. Physicians (Hospital, clinic, private practice)

- Send blood samples from suspect WNV patients to the Central Public Health Laboratory (CPHL) in Etobicoke for serological testing :
 Central Public Health Laboratory
 81 Resources Road
 Toronto, ON
 M9P 3T1
- Report suspect WNV case immediately to local Medical Officer of Health
- Fax "**Patient Report Form**" to local Medical Officer of Health

2. Health Units :

- Report suspect WNV case immediately by telephone to Dr. Margaret Fearon
 Dr. Margaret Fearon 416-235-5725 (pager: 416-715-4209)
 (After hours duty officer: 416-605-6113)
- Report suspect WNV case immediately by telephone to Dr. Chuck Le Ber or Dr. Dean Middleton at the Ministry of Health and Long-Term Care, Public Health Branch.
 Dr. Chuck Le Ber 416-327-7421
 Dr. Dean Middleton 416-327-7422
- Report suspect WNV case in RDIS under the disease "viral meningitis/encephalitis" as outlined in the April 27th, 2001 letter from Colin D'Cunha to all MOH's and Communicable Disease Coordinators regarding Enhanced Passive Human Surveillance for West Nile Encephalitis.

Mosquito Surveillance in Ontario

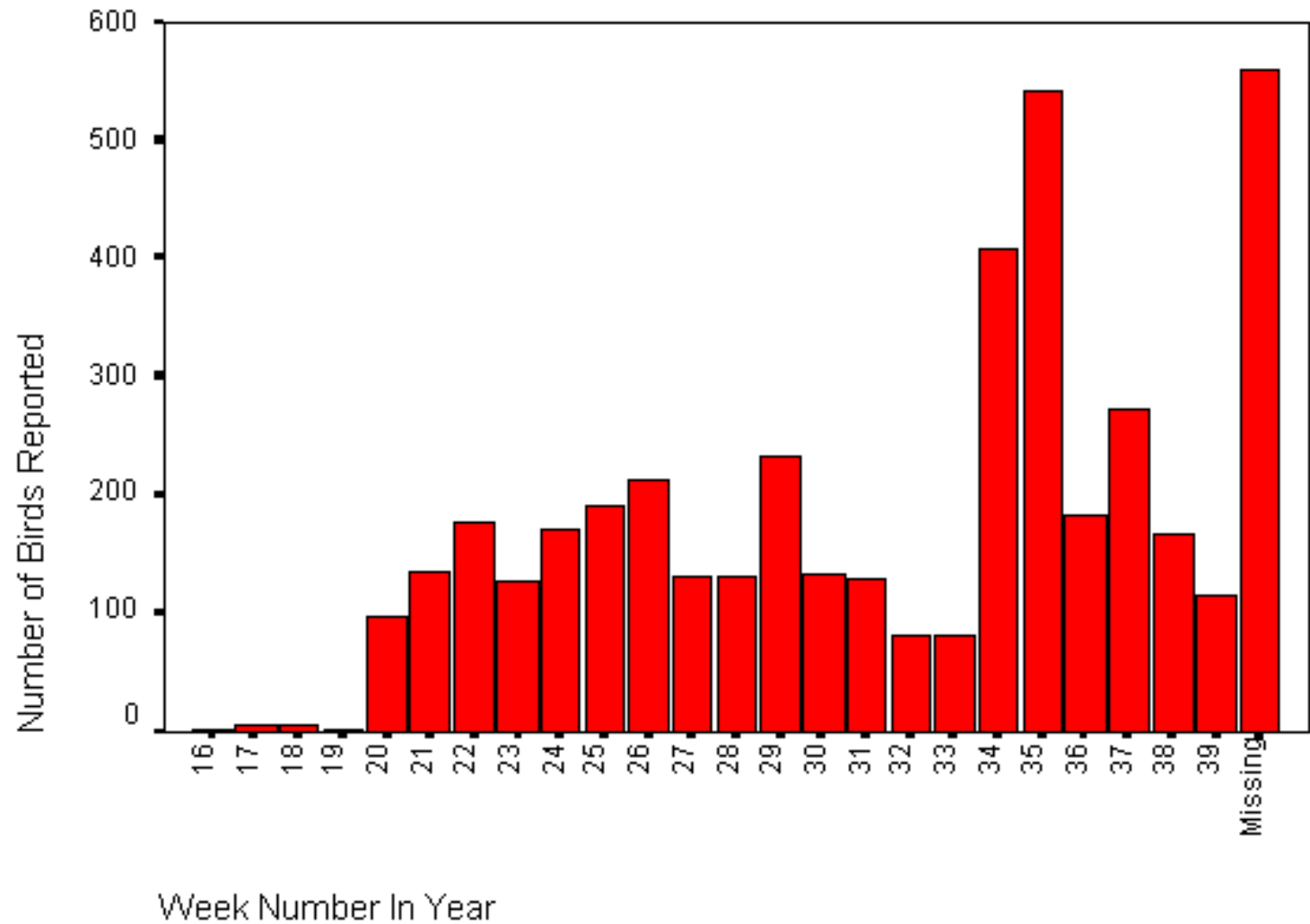
Mosquito surveillance is occurring in the ten health units where birds positive for WNV have been confirmed (see Summary of ONTARIO

Dead Bird Surveillance in Ontario

This bulletin summarizes information up to Oct. 1 of the 40th week of the Dead Bird Surveillance season (Week 40 = Oct 1 to 7, 2001). There have been a total of 4,300 reported dead bird sightings and/or submissions. Of these 4,300 birds, 2,284 were picked up and sent to the lab in Guelph for WNV testing ('pick-ups'), of which 1,458 were submitted for testing at the national laboratory in Winnipeg ('Submissions'). Maps stating the number of dead bird submissions to the lab will be provided weekly to [health units](#).

Figure 1. Ontario Reported Number of WNV Surveillance Program Dead Birds
October 1, 2001 (N= 4,300*)

* Omitted from graph: 3 dead birds reported prior to season



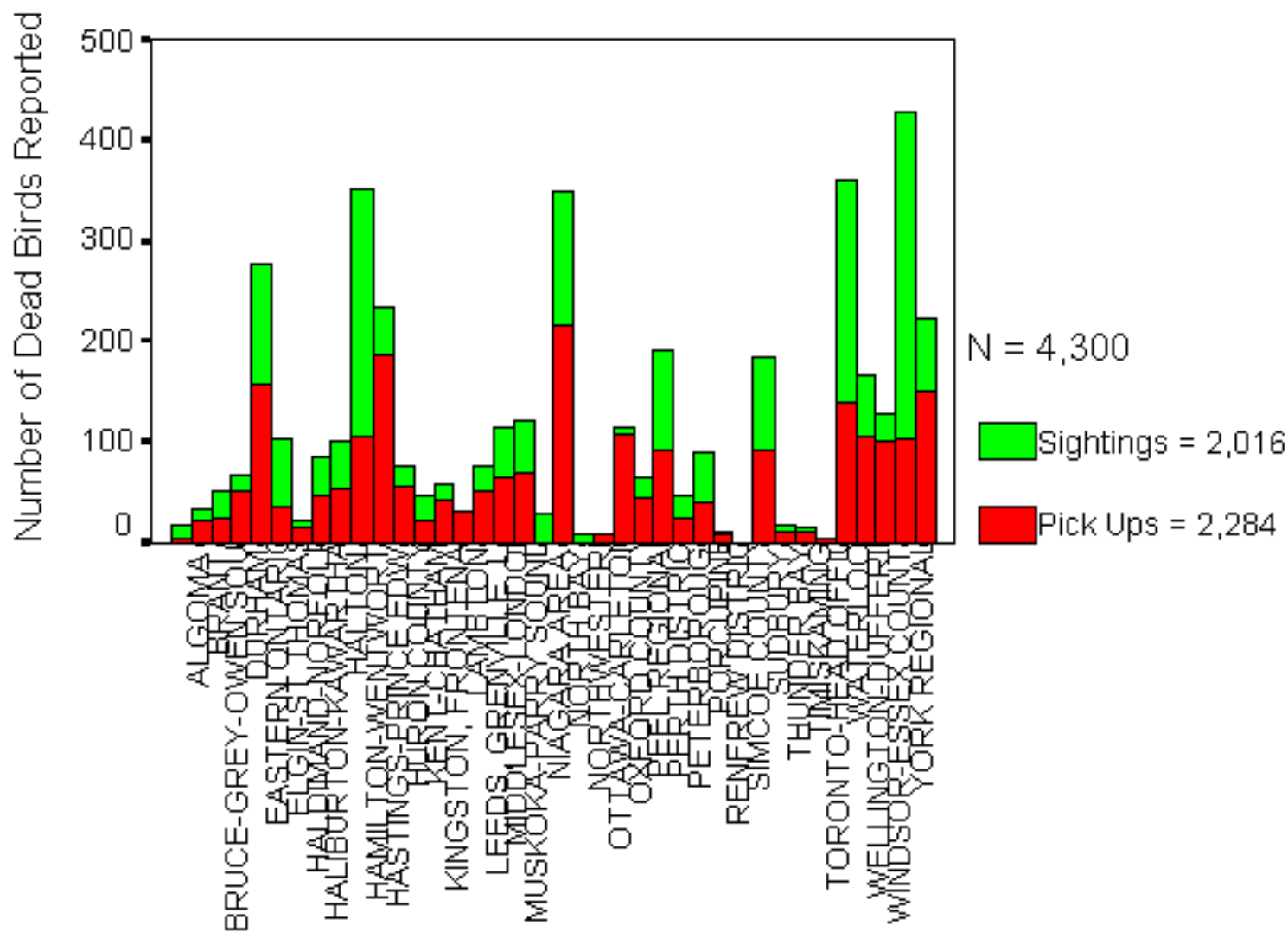
Note : Week 16 = April 16-20, 2001
Week 40 = Oct 1-7, 2001

Figure 2. Types of Ontario Dead Birds Reported in 2001 Season as of October 1, 2001

BIRDS					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	American Crow	2359	54.9	54.9	54.9
	Blue Jay	1485	34.5	34.5	89.4
	Other Birds	433	10.1	10.1	99.5
	Common Raven	22	.5	.5	100.0
	Gray Jay	1	.0	.0	100.0
	Total	4300	100.0	100.0	

Figure 3. Total Number of Dead Bird Reports in 2001 by Ontario Health Units as of Oct 1, 2001

Note** PickUps' are health unit submissions to the lab in Guelph, whereas 'Submissions' refer to dead birds sent to the lab in Winnipeg for Federal WNV Testing.



Ontario Health Unit

Data Source : Canadian Cooperative Wildlife Health Centre & Health Canada (Sep 17, 01)

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Other News

Worldwide Geographic Distribution

West Nile Virus has been described worldwide and is no longer limited to Africa and Eurasia.

North American Geographic Distribution

The American media has paid much attention to state health departments and local units with respect to their choices regarding the spraying of chemical pesticides. For more information on US protocols for larviciding and spraying, please refer to US State websites.

Figure 4. Number of birds, mosquito pools, horses and humans that have tested positive for WNV in the USA, 2001.

State	Birds	Mosquito Pools	Horses	Humans
Alabama	2		2	
Connecticut	280	21	3	3
D.C.	152			
Florida	217	17	74	7
Georgia	236		7	1
Iowa	1			
Illinois	98	12		
Indiana	27			
Kentucky	19		1	
Louisiana	2		1	
Massachusetts	926	15	7	
Maryland	393	18		5
Maine	4			
Mighigan	20			
Mississippi				
North Carolina	1			
New Hampshire	78	3		
New Jersey	948	315		4
New York	529	207	3	8
Ohio	45	1		
Pennsylvania	201	28	2	2
Rhode Island	121	14		
Tennessee	9			
Virginia	84		1	
Wisconsin	2			
Total	4395	651	101	30

Sourced from Health Canada, October 1, 2001

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U.S. National Maps :

Maps of the *United States WNV Surveillance Programs* can be accessed through the United States Geological Survey: Center for Integration of Natural Disaster Information (CINDI) website : http://cindi.usgs.gov/hazard/event/west_nile/west_nile.html

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Canadian Food Inspection Agency
<http://www.cfia-acia.agr.ca/english/ppc/science/surv/wnvsure.shtml> (June, 2001)

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New York City Department of Health, West Nile Virus Information
<http://www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html> (June 4, 2001)

New Jersey Department of Health

<http://www.state.nj.us/health/cd/westnile/enceph.htm> (July 4, 2001)

Penn State College of Agricultural Sciences

<http://www.pested.psu.edu/spWestNile.html> (July 4, 2001)

Rhode Island Department of Health

<http://www.uri.edu/research/eee/wnv.html> (July 4, 2001)

Vermont Department of Health

<http://www.state.vt.us/health/wnile.htm> (June 4, 2001)

Acknowledgements

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Health Canada (Dr. Peter Buck, Rob Meyers)

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E-mail: dean.middleton@moh.gov.on.ca

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Disease Control Service
Public Health Branch

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Summary of ONTARIO surveillance activities

Human surveillance	No confirmed cases in the year 2001
Mosquito Surveillance	A pilot program for mosquito surveillance was initiated in 6 health units in early August. Windsor-Essex, Chatham-Kent, Lambton, Middlesex-London, Halton, Hamilton, Peel, Toronto, York Region and Durham are also trapping mosquitoes because of WNV activity.
Dead Bird surveillance	As of Sep. 17th, a total of 3,771 dead birds have been sighted and/or collected in Ontario. Of these, 2,035 were collected and sent to Guelph for consideration, and of these, 1,258 were sent to Winnipeg for WNV testing. As of Sep. 18th, there are 60 confirmed WNV positive birds. 53 birds are American Crows and 7 birds are Blue Jays. The confirmed positive birds were found in Windsor-Essex (15), Chatham-Kent (2), Lambton (1), Middlesex-London (1), Hamilton (2), Halton (3), Peel (12), Toronto (19), York Region (4), and Durham (1).

Canada

As of Sep 17th 2001, there have been 5,509 dead birds reported to the WNV Dead Bird Surveillance program for all Canadian provinces.

United States (as of Sep 17, 2001)

Human cases :

Fifteen human cases of WNV have been reported in 2001.

Birds, mosquitoes, horses and other animals :

3,053 dead birds, 18 live birds, 487 WNV-positive mosquito pools, and 99 horses have tested positive for West Nile Virus.

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West Nile Virus Surveillance in Ontario

The purpose of the West Nile Virus (WNV) Bulletins is to provide a summary of the results of the various surveillance activities in Ontario for the current year. This issue will update WNV findings elsewhere in Canada and in the United States.

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West Nile Virus Activities in Ontario for the Year 2001

Human Encephalitis Surveillance in Ontario

Health Canada has asked that key health-care providers, including family and emergency room physicians, infectious disease specialists and

neurologists, monitor their patients for symptoms of West Nile Virus in 2001. These health-care professionals are being asked to promptly report any probable and confirmed cases of viral encephalitis to local/provincial public health authorities.

REMINDER

1. Physicians (Hospital, clinic, private practice)

- Send blood samples from suspect WNV patients to the Central Public Health Laboratory (CPHL) in Etobicoke for serological testing :
 - Central Public Health Laboratory
 - 81 Resources Road
 - Toronto, ON
 - M9P 3T1
- Report suspect WNV case immediately to local Medical Officer of Health
- Fax "**Patient Report Form**" to local Medical Officer of Health

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Dr. Margaret Fearon 416-235-5725 (pager: 416-715-4209)
(After hours duty officer: 416-605-6113)

- Report suspect WNV case immediately by telephone to Dr. Chuck Le Ber or Dr. Dean Middleton at the Ministry of Health and Long-Term Care, Public Health Branch.
Dr. Chuck Le Ber 416-327-7421
Dr. Dean Middleton 416-327-7422

- Report suspect WNV case in RDIS under the disease "viral meningitis/encephalitis" as outlined in the April 27th, 2001 letter from Colin D'Cunha to all MOH's and Communicable Disease Coordinators regarding Enhanced Passive Human Surveillance for West Nile Encephalitis.

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Mosquito Surveillance in Ontario

Mosquito surveillance is occurring in the ten health units where birds positive for WNV have been confirmed (see Summary of ONTARIO surveillance activities: [Dead Bird Surveillance](#)) and in health units taking part in a pilot program (see Summary of ONTARIO surveillance activities: [Mosquito Surveillance](#)).

[TOP](#)

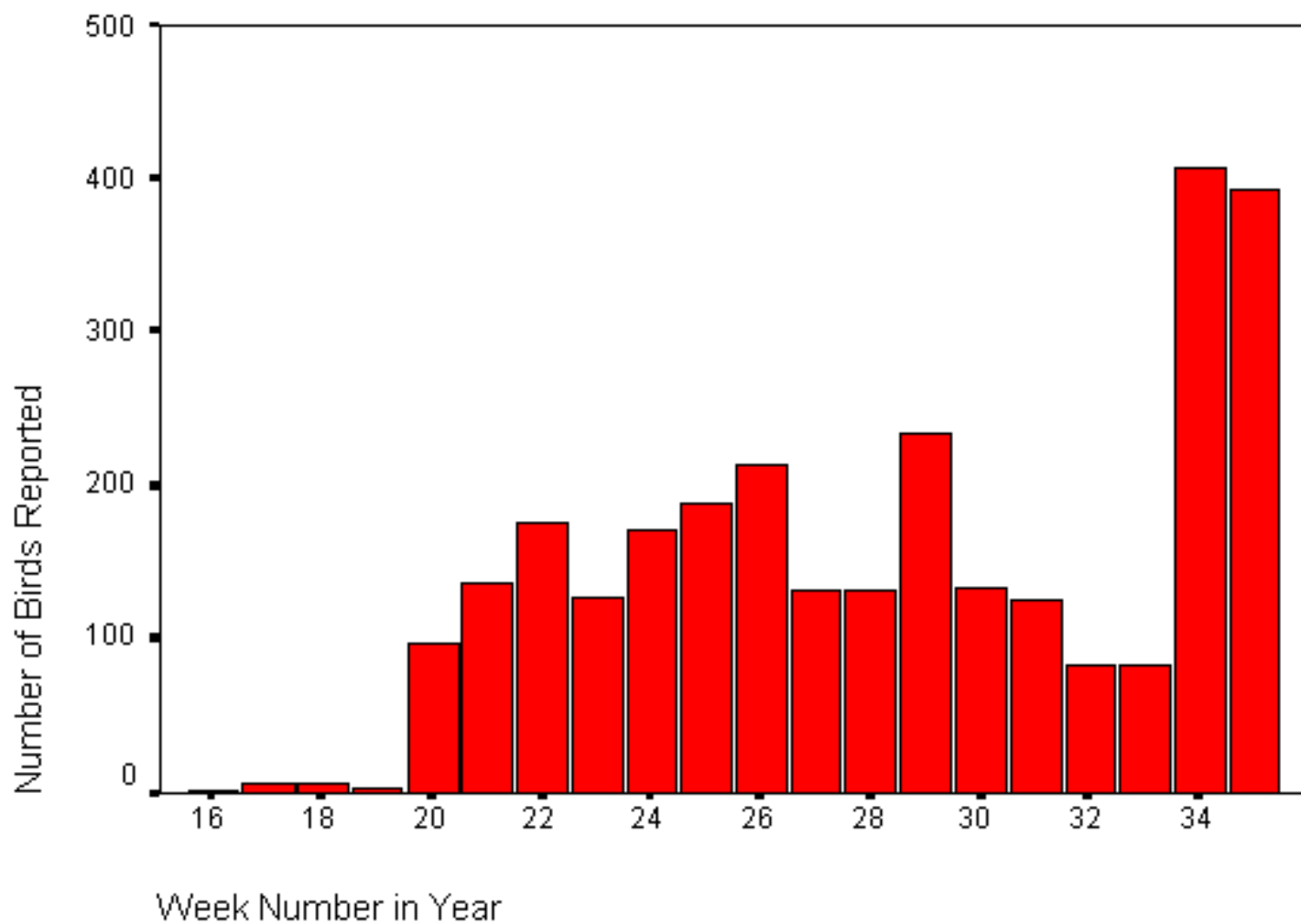
Dead Bird Surveillance in Ontario

This bulletin summarizes information up to Sep. 17 of the 38th week of the Dead Bird Surveillance season (Week 38 = Sep 17 to 21, 2001). There have been a total of 3,771 reported dead bird sightings and/or submissions. Of these 3,771 birds, 2,035 were picked up and sent to the lab in Guelph for WNV testing ('pick-ups'), of which 1,258 were submitted for testing at the national laboratory in Winnipeg ('Submissions'). Maps stating the number of dead bird submissions to the lab will be provided weekly to health units.

**Figure 1. Ontario Reported Number of WNV Surveillance Program Dead Birds
August 30, 2001 (N= 2,943*)**

* Omitted from graph: 91 reported dead birds = missing, 3 reported dead birds = prior to season

NOTE: Update not available as of Sep. 17, 2001



Data : Canadian Cooperative Wildlife Health Centre, Health Canada August 30, 2001

Note : Week 16 = April 16-20, 2001
Week 35 = Aug 27-31, 2001

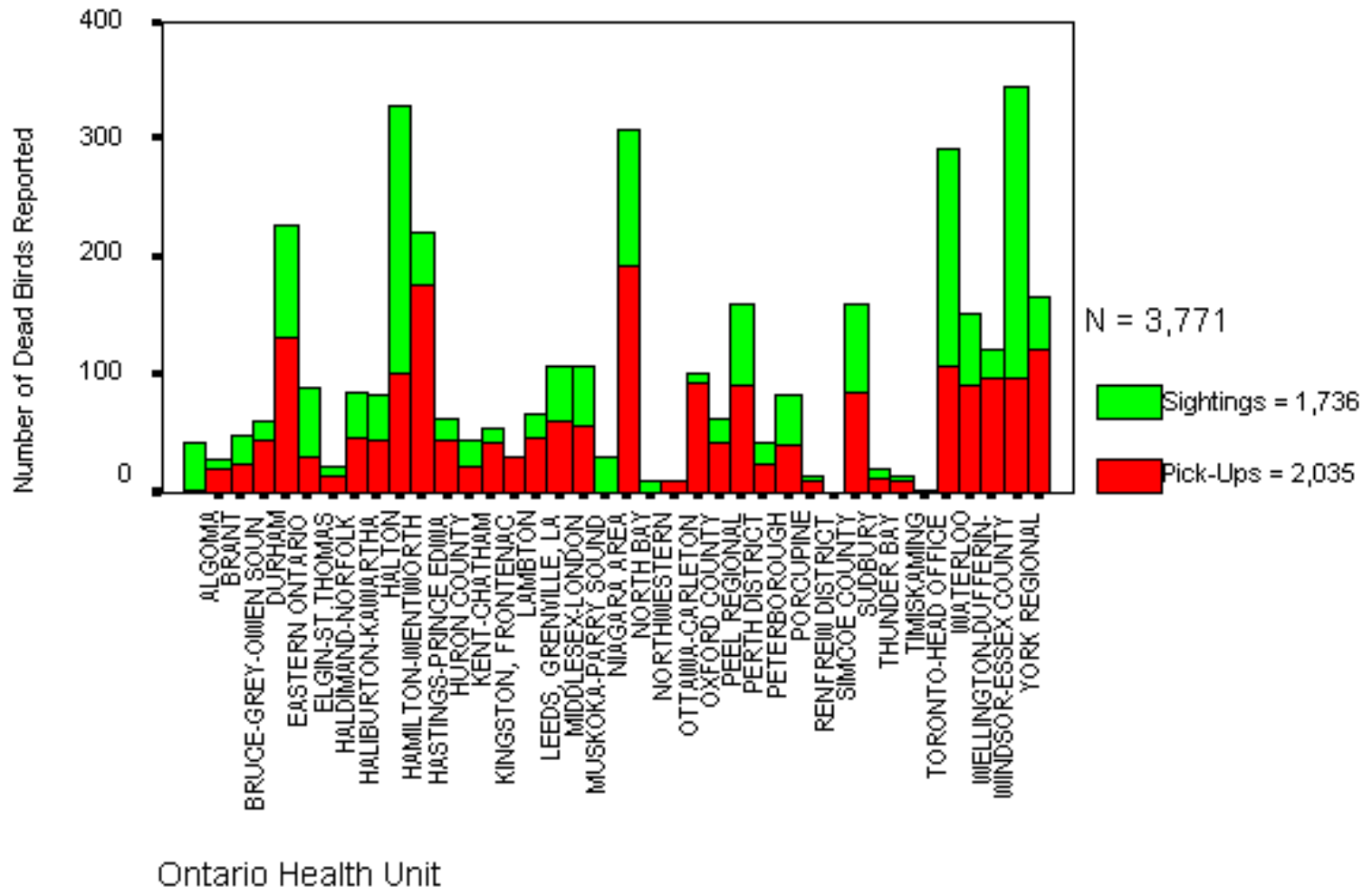
Figure 2. Types of Ontario Dead Birds Reported in 2001 Season as of September 17, 2001

BIRDS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	American Crow	2075	55.0	55.0	55.0
	Blue Jay	1268	33.6	33.6	88.7
	Common Raven	22	.6	.6	89.2
	Other Birds	406	10.8	10.8	100.0
	Total	3771	100.0	100.0	

Figure 3. Total Number of Dead Bird Reports in 2001 by Ontario Health Units as of Sep 17, 2001

Note** Note** 'PickUps' are health unit submissions to the lab in Guelph, whereas 'Submissions' refer to dead birds sent to the lab in Winnipeg for Federal WNV Testing.



Data Source : Canadian Cooperative Wildlife Health Centre & Health Canada (Sep 17, 01)

Other News

Worldwide Geographic Distribution

West Nile Virus has been described worldwide and is no longer limited to Africa and Eurasia.

North American Geographic Distribution

The American media has paid much attention to state health departments and local units with respect to their choices regarding the spraying of chemical pesticides. For more information on US protocols for larviciding and spraying, please refer to US State websites.

Figure 4. Number of birds, mosquito pools, horses and humans that have tested positive for WNV in the USA, 2001.

State	Birds	Mosquito Pools	Horses	Humans
Alabama	2			
Connecticut	126	10	3	3
D.C.	152			
Florida	103	15	74	4
Georgia	163		7	1
Illinois	25	3		
Indiana	5			
Kentucky			1	
Louisiana	1		1	
Massachusetts	689	13	7	
Maryland	317	11		2
Michigan	20			
New Hampshire	53	3		
New Jersey	744	224		1
New York	441	185	3	4
Ohio	23			
Pennsylvania	125	9	2	
Rhode Island	51	14		
Virginia	29		1	
Wisconsin	2			
Total	3071	487	99	15

Sourced from Health Canada, September 17, 2001

U.S. National Maps :

Maps of the *United States WNV Surveillance Programs* can be accessed through the United States Geological Survey: Center for Integration of

West Nile Virus Resource Websites

Canada :

Canadian Cooperative Wildlife Health Centre
<http://wildlife.usask.ca/english/frameWestNile.htm> (Aug, 2001)

Canadian Food Inspection Agency
<http://www.cfia-acia.agr.ca/english/ppc/science/surv/wnvsure.shtml> (June, 2001)

Health Canada
<http://www.hc-sc.gc.ca/hpb/lcdc/bid/wnv/index.html#top> (June 4,2001)

New Brunswick Health and Wellness
<http://www.gnb.ca/0053/en/issues/wnvirus.htm> (June 4, 2001)

Pest Management Regulatory Agency (PMRA)
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Region of Peel: West Nile Virus Homepage
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International :

Hubálek, Z. and J. Halouzka. 1999. West Nile Fever - a reemerging mosquito-borne viral disease in Europe. *Emerging Infectious Diseases* 5(5): 643-650.
<http://www.cdc.gov/ncidod/eid/vol5no5/hubalek.htm>

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<http://id.mescap.com/reuters/prof/2001/05/05.25/20010524drgd003.html>

Sopel, J. West Nile fever hits France. *BBC News Report*, Wed, 11 Oct 2000, 13:21 GMT 14:21 UK [edited]
http://news.bbc.co.uk/hi/english/world/europe/newsid_967000/967048.stm

U.S.A. :

United States Geological Survey: Center for Integration of Natural Disaster Information (CINDI)
http://cindi.usgs.gov/hazard/event/west_nile/west_nile.html (June 15, 2001)

Connecticut Department of Environmental Protection
<http://dep.state.ct.us/mosquito/index.asp> (June 4,2001)

Cornell Environmental Risk Assessment Program: West Nile Virus
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District of Columbia Department of Health
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New York City Department of Health, West Nile Virus Information
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New Jersey Department of Health
<http://www.state.nj.us/health/cd/westnile/enceph.htm> (July 4, 2001)

Penn State College of Agricultural Sciences
<http://www.pested.psu.edu/spWestNile.html> (July 4, 2001)

Rhode Island Department of Health
<http://www.uri.edu/research/eee/wnv.html> (July 4, 2001)

Acknowledgements

The contribution of the following agencies and individuals in the publication of the *West Nile Virus Bulletin* is greatly appreciated :

Ontario Ministry of Health and Long-Term Care: Public Health Branch (Dr. Colin D'Cunha, Dr. Charles Le Ber, Dr. Dean Middleton)
Canadian Cooperative Wildlife Health Centre (Dr. Ian Barker, Ron Templeman)
Health Canada (Dr. Peter Buck, Rob Meyers)

FOR MORE INFORMATION

Comments, questions and suggestions about surveillance results in this bulletin should be directed to :



Dr. Dean Middleton,
Veterinary Consultant,
Disease Control Service,
Tel: 416-327-7422,
E-mail: dean.middleton@moh.gov.on.ca

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West Nile Virus Bulletin

Disease Control Service
Public Health Branch

Volume 2 / Issue 7 September 4, 2001



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Summary of ONTARIO surveillance activities

Human surveillance	No confirmed cases in the year 2001
Mosquito Surveillance	A pilot program for mosquito surveillance was initiated in 6 health units in early August. Windsor, Halton, Peel, Toronto and Chatham are also trapping mosquitoes because of WNV activity.
Dead Bird surveillance	As of Aug. 30th, a total of 2,943 dead birds have been sighted and/or collected in Ontario. Of these, 1,689 were collected and sent to Guelph for consideration, and of these, 1,038 were sent to Winnipeg for WNV testing. As of Sep. 4th, there are 32 confirmed WNV positive birds and 2 presumptive WNV positive birds. 29 birds were crows and 5 birds were blue jays. The confirmed positive birds were found in Windsor (13), Halton (3), Peel (10), Toronto (6) and the presumptive positive birds were found in Chatham-Kent (2).

Summary of surveillance activities in other jurisdictions to date

Canada

As of Aug 30th 2001, there have been 4,446 dead birds reported to the WNV Dead Bird Surveillance program for all Canadian provinces.

United States

Human cases :

Nine human cases of WNV have been identified have been reported in 2001.

Birds, mosquitoes, horses and other animals :

1,766 dead birds, 6 live birds, and 360 WNV-positive mosquito pools that tested positive for West Nile Virus. Forty-nine horses have been identified with WNV.

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West Nile Virus Surveillance in Ontario

The purpose of the West Nile Virus (WNV) Bulletins is to provide a summary of the results of the various surveillance activities in Ontario for the current year. This issue will update WNV findings elsewhere in Canada and in the United States.

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West Nile Virus Activities in Ontario for the Year 2001

Human Encephalitis Surveillance in Ontario

Health Canada has asked that key health-care providers, including family and emergency room physicians, infectious disease specialists and neurologists, monitor their patients for symptoms of West Nile Virus in 2001. These health-care professionals are being asked to promptly report any probable and confirmed cases of viral encephalitis to local/provincial public health authorities.

REMINDER

1. Physicians (Hospital, clinic, private practice)

- Send blood samples from suspect WNV patients to the Central Public Health Laboratory (CPHL) in Etobicoke for serological testing :
 - Central Public Health Laboratory
 - 81 Resources Road
 - Toronto, ON
 - M9P 3T1
- Report suspect WNV case immediately to local Medical Officer of Health
- Fax **"Patient Report Form"** to local Medical Officer of Health

2. Health Units :

- Report suspect WNV case immediately by telephone to Dr. Margaret Fearon
Dr. Margaret Fearon 416-235-5725 (pager: 416-715-4209)
(After hours duty officer: 416-605-6113)
- Report suspect WNV case immediately by telephone to Dr. Chuck Le Ber or Dr. Dean Middleton at the Ministry of Health and Long-Term Care, Public Health Branch.
Dr. Chuck Le Ber 416-327-7421
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Mosquito Surveillance in Ontario

The Ministry of Health and Long-term Care has requested the assistance of six health units to take part in a mosquito surveillance program which began in early August, 2001. The six health units are Eastern Ontario, Leeds, Hastings, Toronto, Hamilton, and Niagara.

As WNV activity was identified in birds, mosquito surveillance began in Windsor, Halton, Peel, Toronto (provided additional traps) and Chatham-Kent.

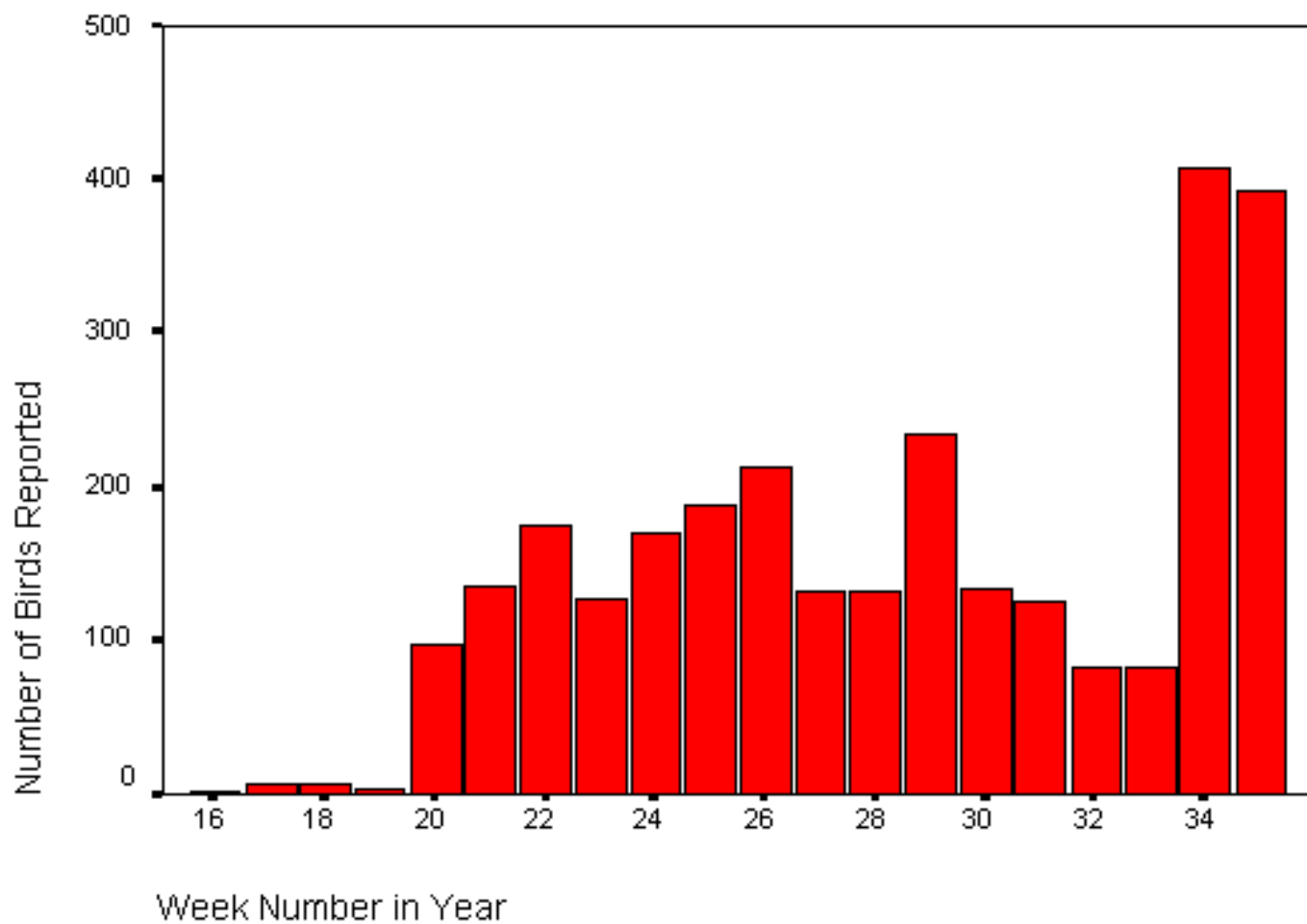
[TOP](#)

Dead Bird Surveillance in Ontario

This bulletin summarizes information up to, and including, the 35th week of the Dead Bird Surveillance season (Week 35 = Aug 27 to 31, 2001). There have been a total of 2,943 reported dead bird sightings and/or submissions. Of these 2,943 birds, 1,689 were picked up and sent to the lab in Guelph for WNV testing ('pick-ups'), of which 1,038 were submitted for testing at the national laboratory in Winnipeg ('Submissions'). Maps stating the number of dead bird submissions to the lab will be provided weekly to health units.

**Figure 1. Ontario Reported Number of WNV Surveillance Program Dead Birds
August 30, 2001 (N= 2,943*)**

* Omitted from graph : 91 reported dead birds = missing, 3 reported dead birds = prior to season



Data : Canadian Cooperative Wildlife Health Centre, Health Canada August 30, 2001

Note : Week 16 = April 16-20, 2001
Week 35 = Aug 27-31, 2001

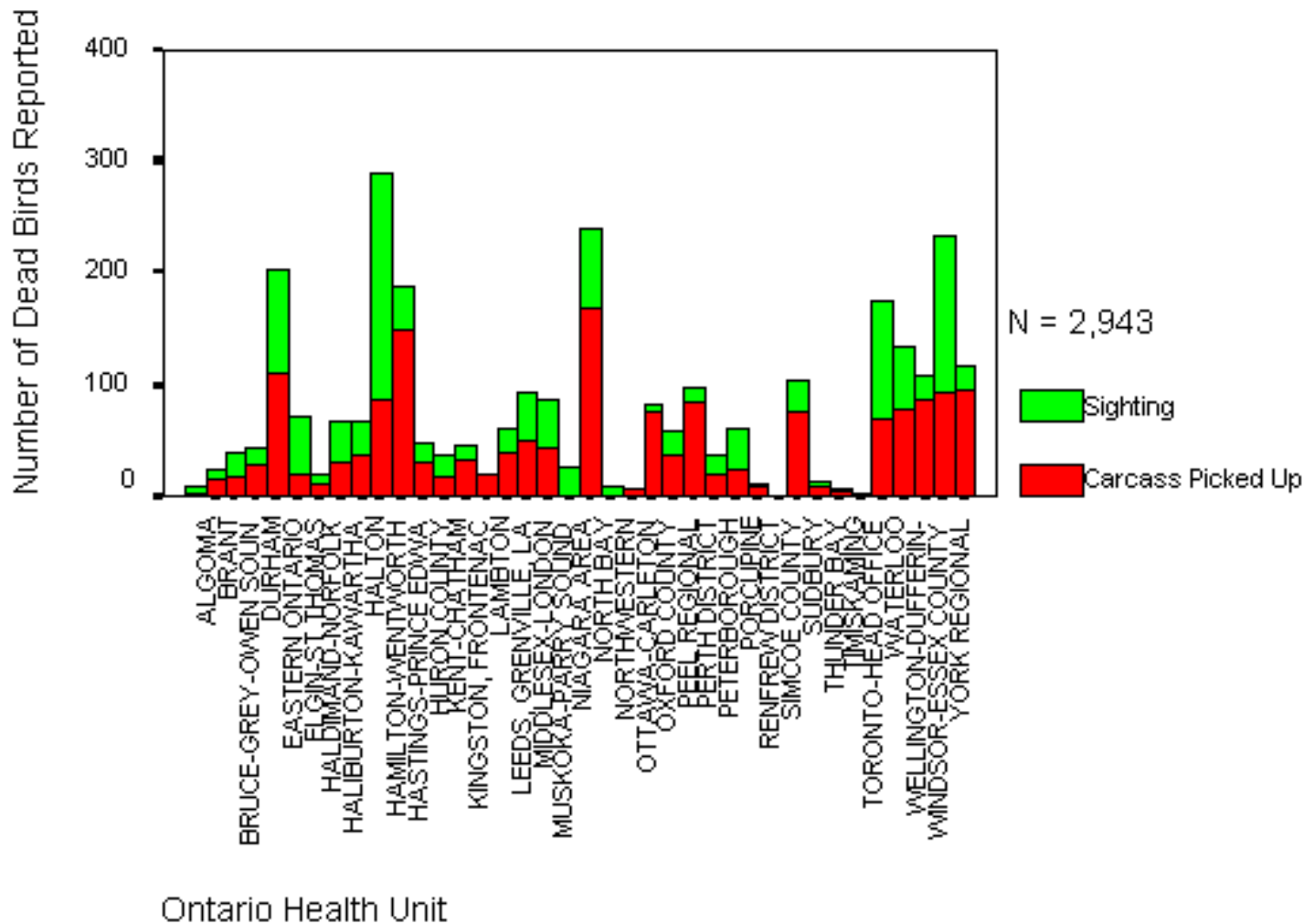
Figure 2. Types of Ontario Dead Birds Reported in 2001 Season as of August 30, 2001

BIRDS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	American Crow	1629	55.4	55.4	55.4
	Blue Jay	911	31.0	31.0	86.3
	Common Raven	19	.6	.6	87.0
	Other Birds	384	13.0	13.0	100.0
	Total	2943	100.0	100.0	

Figure 3. Total Number of Dead Bird Reports in 2001 by Ontario Health Units as of Aug 30, 2001

Note** 'PickUps' are health unit submissions to the lab in Guelph, whereas 'Submissions' refer to dead birds sent to the lab in Winnipeg for Federal WNV Testing.



Data Source : Canadian Cooperative Wildlife Health Centre & Health Canada (Aug 16, 01)

Other News

Worldwide Geographic Distribution

West Nile Virus has been described worldwide and is no longer limited to African and Eurasia.

North American Geographic Distribution

The American media has paid much attention to state health departments and local units with respect to their choices regarding the spraying of chemical pesticides. For more information on US protocols for larviciding and spraying, please refer to US State websites.

Figure 4. Number of birds, mosquito pools, horses and humans that have tested positive for WNV in the USA, 2001.

State	Birds	Mosquito Pools	Horses	Humans
Alabama	2			
Connecticut	48	4	1	
D.C.	46			
Florida	57	14	44	4
Georgia	81		2	1
Indiana	1			
Louisiana	1			
Massachusetts	327	6		
Maryland	219	8		
Michigan	8			
New Hampshire	16			
New Jersey	647	193		1
New York	265	124	1	3
Ohio	1			
Pennsylvania	37	1	1	
Rhode Island	8	10		
Virginia	8			
Total	1772	360	49	9

Sourced from Health Canada, August 30, 2001

U.S. National Maps :

Maps of the United States WNV Surveillance Programs can be accessed through the United States Geological Survey : Center for Integration of Natural Disaster Information (CINDI) website : http://cindi.usgs.gov/hazard/event/west_nile/west_nile.html

Maps

[Dead Birds Submitted for West Nile Virus Diagnosis by Health Unit in Ontario as of August 27, 2001.](#) (MS Word)

[Birds Submitted for West Nile Virus Diagnosis by Health Region in Canada as of August 28, 2001.](#) (MS Word)

West Nile Virus Resource Websites

Canada :

Canadian Cooperative Wildlife Health Centre
<http://wildlife.usask.ca/english/frameWestNile.htm> (Aug, 2001)

Canadian Food Inspection Agency
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http://news.bbc.co.uk/1/hi/english/world/europe/newsid_967000/967048.stm

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Rhode Island Department of Health

<http://www.uri.edu/research/eee/wnv.html> (July 4, 2001)

Vermont Department of Health

<http://www.state.vt.us/health/wnile.htm> (June 4, 2001)

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West Nile Virus Bulletin

Disease Control Service
Public Health Branch

Volume 2 / Issue 6 August 21, 2001



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Summary of ONTARIO surveillance activities

Human surveillance	No confirmed cases in the year 2001
Mosquito Surveillance	A pilot program for mosquito surveillance has been initiated in 6 Ontario Health Units. Windsor and Halton will be added to this program by Aug. 22nd.
Dead Bird surveillance	A total of 2,091 dead birds have been sighted and/or collected in Ontario. Of these, 1,272 were collected and sent to Guelph for consideration, and of these, 803 were sent to Winnipeg for WNV testing. There are two birds that were presumptive positive as of Aug 20, 2001. One crow was found in Windsor on Aug. 8 and one blue jay in Oakville on Aug. 13.

Summary of surveillance activities in other jurisdictions to date

Canada

As of Aug 16th 2001, there have been 3,148 dead birds reported to the WNV Dead Bird Surveillance program for all Canadian provinces.

United States

Human cases :

Florida (2 cases) and New York (1 case) have identified human cases of WNV as of August 17, 2001.

Birds and mosquitoes :

As of August 17, 2001, 715 dead birds and 175 WNV-positive mosquito pools that tested positive for West Nile Virus have been reported in 2001.

Horses and Other Animals :

Florida (17 horses) and Pennsylvania (1 horse) have reported 18 WNV positive horses as of August 17, 2001.

West Nile Virus Surveillance in Ontario

The purpose of the West Nile Virus (WNV) Bulletins is to provide a summary of the results of the various surveillance activities in Ontario for the current year. This issue will update WNV findings elsewhere in Canada and in the United States.

West Nile Virus Activities in Ontario for the Year 2001

Human Encephalitis Surveillance in Ontario

Health Canada has asked that key health-care providers, including family and emergency room physicians, infectious disease specialists and neurologists, monitor their patients for symptoms of West Nile Virus in 2001. These health-care professionals are being asked to promptly report any probable and confirmed cases of viral encephalitis to local/provincial public health authorities.

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Mosquito Surveillance in Ontario

The Ministry of Health and Long-term Care has requested the assistance of six health units to take part in a mosquito surveillance program. The six health units are Eastern Ontario, Leeds, Hastings, Toronto Public Health, Hamilton, and Niagara. The program began in early August, 2001.

As of August 22, mosquito surveillance will have begun in Windsor and Halton because of the presumptive-positive WNV birds.

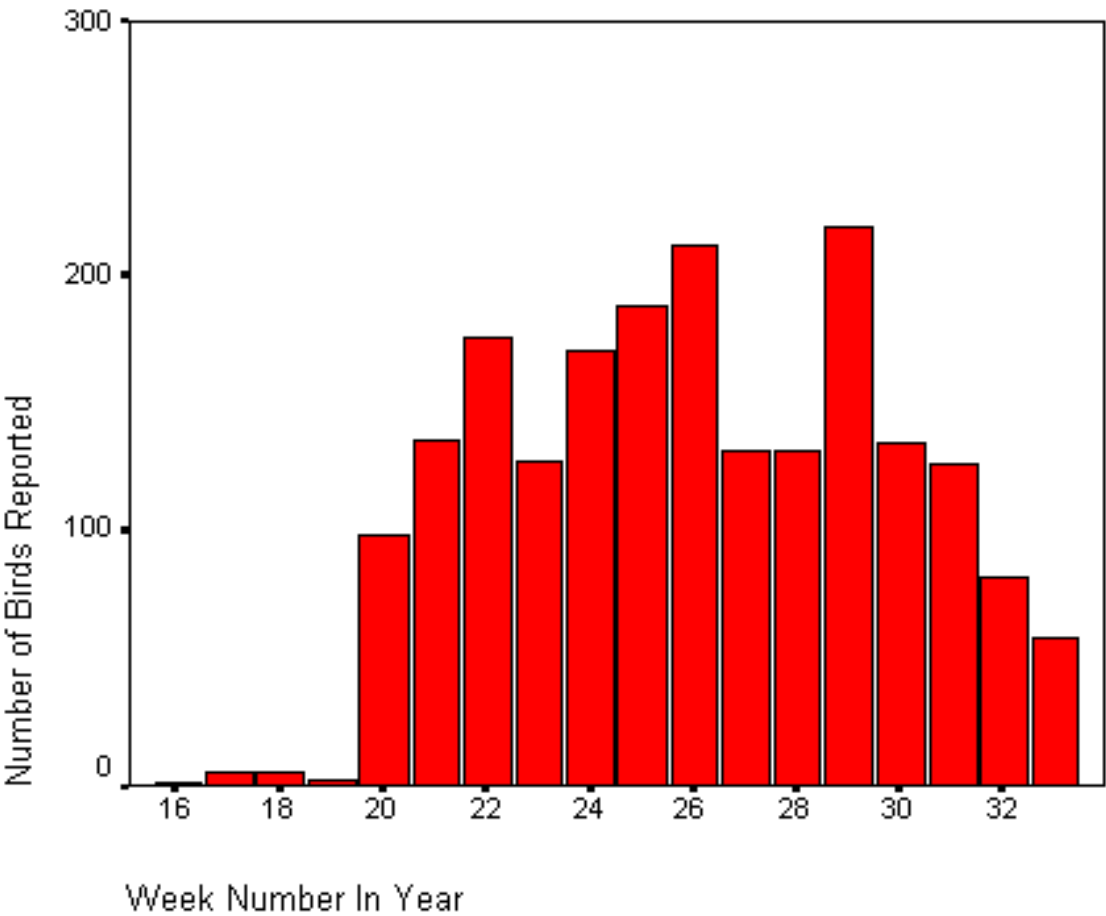
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Dead Bird Surveillance in Ontario

This bulletin summarizes information up to, and including, the 33rd week of the Dead Bird Surveillance season (Week 33 = Aug 13 to 17, 2001). There have been a total of 2,091 reported dead bird sightings and/or submissions. Of these 2,091 birds, 1,272 were picked up and sent to the lab in Guelph for WNV testing ('pick-ups'), of which 803 were submitted for testing at the national laboratory in Winnipeg ('Submissions'). Maps stating the number of dead bird submissions to the lab will be provided weekly to health units.

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Figure 1. Ontario Reported Number of WNV Surveillance Program Dead Birds
August 16, 2001 (N= 2091*)
* Omitted from graph: 74 reported dead birds = missing, 3 reported dead birds = prior to season



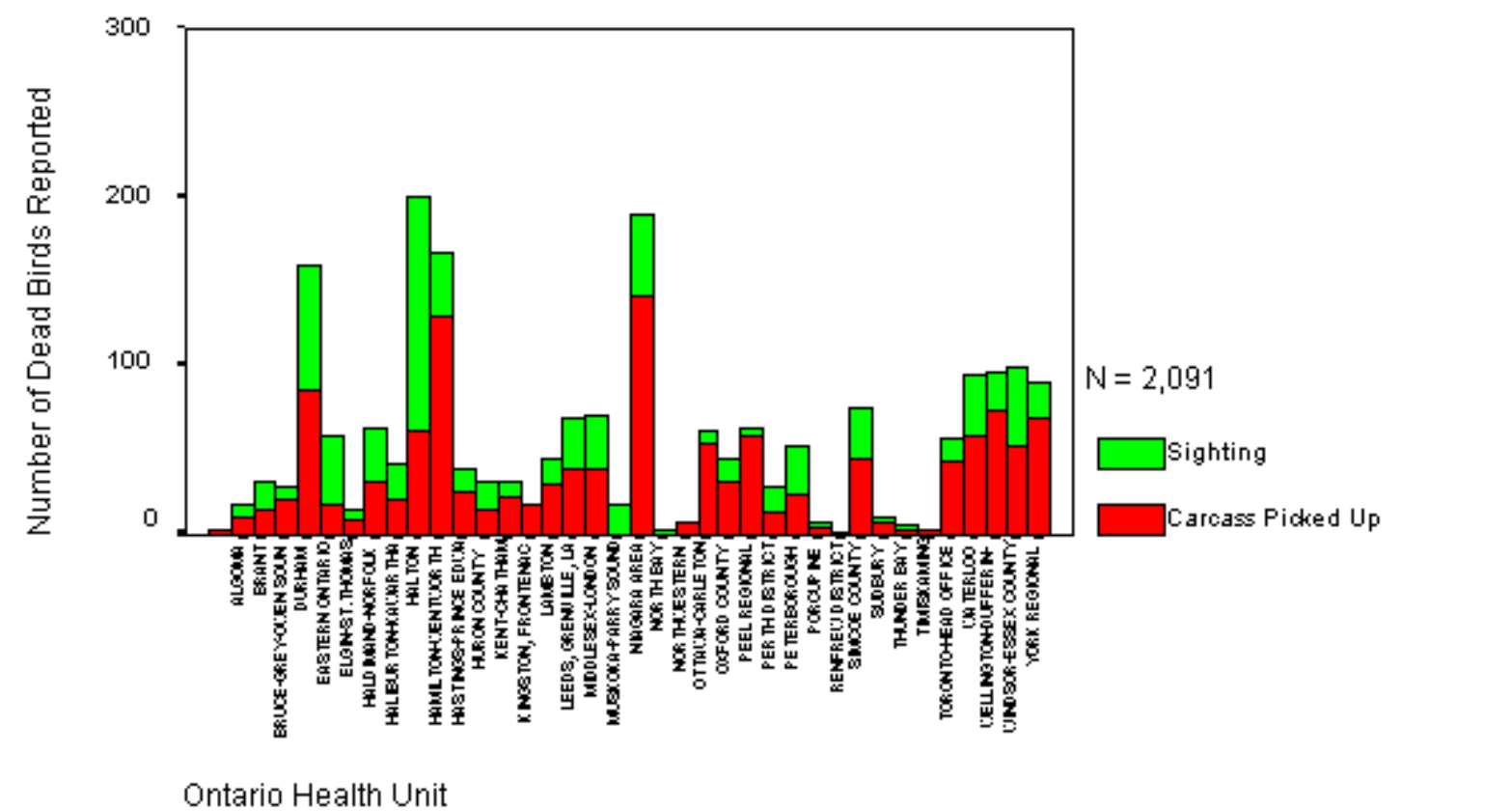
Note : Week 16 = April 16-20, 2001
Week 33 = Aug 13-17, 2001

Figure 2. Types of Ontario Dead Birds Reported in 2001 Season as of August 16, 2001

BIRDS		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	American Crow	1158	55.4	55.4	55.4
	Blue Jay	564	27.0	27.0	82.4
	Common Raven	15	.7	.7	83.1
	Other Birds	354	16.9	16.9	100.0
	Total	2091	100.0	100.0	

Figure 3. Total Number of Dead Bird Reports in 2001 by Ontario Health Units as of Aug 16, 2001 (n=2,091)

Note** 'PickUps' are health unit submissions to the lab in Guelph, whereas 'Submissions' refer to dead birds sent to the lab in Winnipeg for Federal WNV Testing.



Other News

Worldwide Geographic Distribution

West Nile Virus has been described worldwide and is no longer limited to African and Eurasia.

North American Geographic Distribution

The American media has paid much attention to state health departments and local units with respect to their choices regarding the spraying of chemical pesticides. For more information on US protocols for larviciding and spraying, please refer to US State websites.

Table 1. Number of birds, mosquito pools, horses and humans that have tested positive for WNV in the USA, 2001.

State	Birds	Mosquito Pools	Horses	Humans
Connecticut	18	3		
D.C.	22			
Florida	32		17	2
Georgia	39			
Louisiana	1			
Massachusetts	80	5		
Maryland	144	8		
New Jersey	249	101		
New York	112	54		1
Ohio	1			
Pennsylvania	10		1	
Rhode Island	5	4		
Virginia	2			
Total	715	175	18	3

Sourced from Health Canada, August 16, 2001

U.S. National Maps :

Maps of the *United States WNV Surveillance Programs* can be accessed through the United States Geological Survey: Center for Integration of Natural Disaster Information (CINDI) website : cindi.usgs.gov/hazard/event/west_nile/west_nile.html

Maps

Dead Birds Submitted for West Nile Virus Diagnosis by Health Unit in Ontario as of August 20, 2001. (MS Word)

Birds Submitted for West Nile Virus Diagnosis by Health Region in Canada as of August 20, 2001. (MS Word)

West Nile Virus Resource Websites

Canada :

Canadian Cooperative Wildlife Health Centre
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U.S.A. :

United States Geological Survey: Center for Integration of Natural Disaster Information (CINDI)
http://cindi.usgs.gov/hazard/event/west_nile/west_nile.html (June 15, 2001)

Connecticut Department of Environmental Protection
<http://dep.state.ct.us/mosquito/index.asp> (June 4,2001)

Cornell Environmental Risk Assessment Program: West Nile Virus
<http://www.cfe.cornell.edu/risk/WNVmainpage.html> (May 25, 2001)

District of Columbia Department of Health

<http://www.dchealth.com/> (June 4,2001)
Maryland Community and Public Administration
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New York City Department of Health, West Nile Virus Information
<http://www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html> (June 4,2001)
New Jersey Department of Health
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Penn State College of Agricultural Sciences
<http://www.pested.psu.edu/spWestNile.html> (July 4, 2001)
Rhode Island Department of Health
<http://www.uri.edu/research/eee/wnv.html> (July 4, 2001)
Vermont Department of Health
<http://www.state.vt.us/health/wnile.htm> (June 4,2001)

Acknowledgements

The contribution of the following agencies and individuals in the publication of the *West Nile Virus Bulletin* is greatly appreciated :

Ontario Ministry of Health and Long-Term Care: Public Health Branch (Dr. Colin D'Cunha, Dr. Charles Le Ber, Dr. Dean Middleton)
Canadian Cooperative Wildlife Health Centre (Dr. Ian Barker, Ron Templeman)
Health Canada (Dr. Peter Buck, Rob Meyers)

FOR MORE INFORMATION

Comments, questions and suggestions about surveillance results in this bulletin should be directed to :



Dr. Dean Middleton,
Veterinary Consultant,
Disease Control Service,
Tel: 416-327-7422,
E-mail: dean.middleton@moh.gov.on.ca

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West Nile Virus Bulletin

Disease Control Service
Public Health Branch

Volume 2 / Issue 5 August 7, 2001



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Summary of ONTARIO surveillance activities

Human surveillance	No confirmed cases in the year 2001
Mosquito Surveillance	A pilot program for mosquito surveillance has been initiated in 6 Ontario Health Units.
Dead Bird surveillance	A total of 1887 specimens sighted and/or collected in Ontario, however, no positive results have been reported as of Aug 1, 2001.

Summary of surveillance activities in other jurisdictions to date

Canada

As of Aug 1st 2001, there have been 2,726 dead birds reported to the WNV Dead Bird Surveillance program for all Canadian provinces. None of the dead birds submitted for WNV testing have tested positive for the virus.

United States

Human cases :

The Florida State Department of Health has identified two human cases of WNV in Florida as of August 3, 2001.

Birds and mosquitoes :

As of August 3, 2001, 296 dead birds and 86 WNV-positive mosquito pools that tested positive for West Nile Virus have been reported in 2001.

Horses and Other Animals :

The state of Florida has reported four WNV positive horses as of August 3, 2001.

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West Nile Virus Surveillance in Ontario

The purpose of the West Nile Virus (WNV) Bulletins is to provide a summary of the results of the various surveillance activities in Ontario for the current year. This issue will update WNV findings elsewhere in Canada and in the United States.

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West Nile Virus Activities in Ontario for the Year 2001

Human Encephalitis Surveillance in Ontario

Health Canada has asked that key health-care providers, including family and emergency room physicians, infectious disease specialists and neurologists, monitor their patients for symptoms of West Nile Virus in 2001. These health-care professionals are being asked to promptly report

any probable and confirmed cases of viral encephalitis to local/provincial public health authorities.

REMINDER

1. Physicians (Hospital, clinic, private practice)

- Send blood samples from suspect WNV patients to the Central Public Health Laboratory (CPHL) in Etobicoke for serological testing :
 - Central Public Health Laboratory
 - 81 Resources Road
 - Toronto, ON
 - M9P 3T1
- Report suspect WNV case immediately to local Medical Officer of Health
- Fax "**Patient Report Form**" to local Medical Officer of Health

2. Health Units :

- Report suspect WNV case immediately by telephone to Dr. Margaret Fearon
Dr. Margaret Fearon 416-235-5725 (pager: 416-715-4209)
(After hours duty officer: 416-605-6113)
- Report suspect WNV case immediately by telephone to Dr. Chuck Le Ber or Dr. Dean Middleton at the Ministry of Health and Long-Term Care, Public Health Branch.
Dr. Chuck Le Ber 416-327-7421
Dr. Dean Middleton 416-327-7422
- Report suspect WNV case in RDIS under the disease "viral meningitis/encephalitis" as outlined in the April 27th, 2001 letter from Colin D'Cunha to all MOH's and Communicable Disease Coordinators regarding Enhanced Passive Human Surveillance for West Nile Encephalitis.

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Mosquito Surveillance in Ontario

The Ministry of Health and Long-term Care has requested the assistance of six health units to take part in a mosquito surveillance program. The six health units are Eastern Ontario, Leeds, Hastings, Toronto Public Health, Hamilton, and Niagara. It is anticipated that the program will begin in early August of 2001.

In addition, mosquito surveillance will be implemented in areas from which a dead bird has tested positive for WNV. Currently there are no WNV-positive dead birds in Canada.

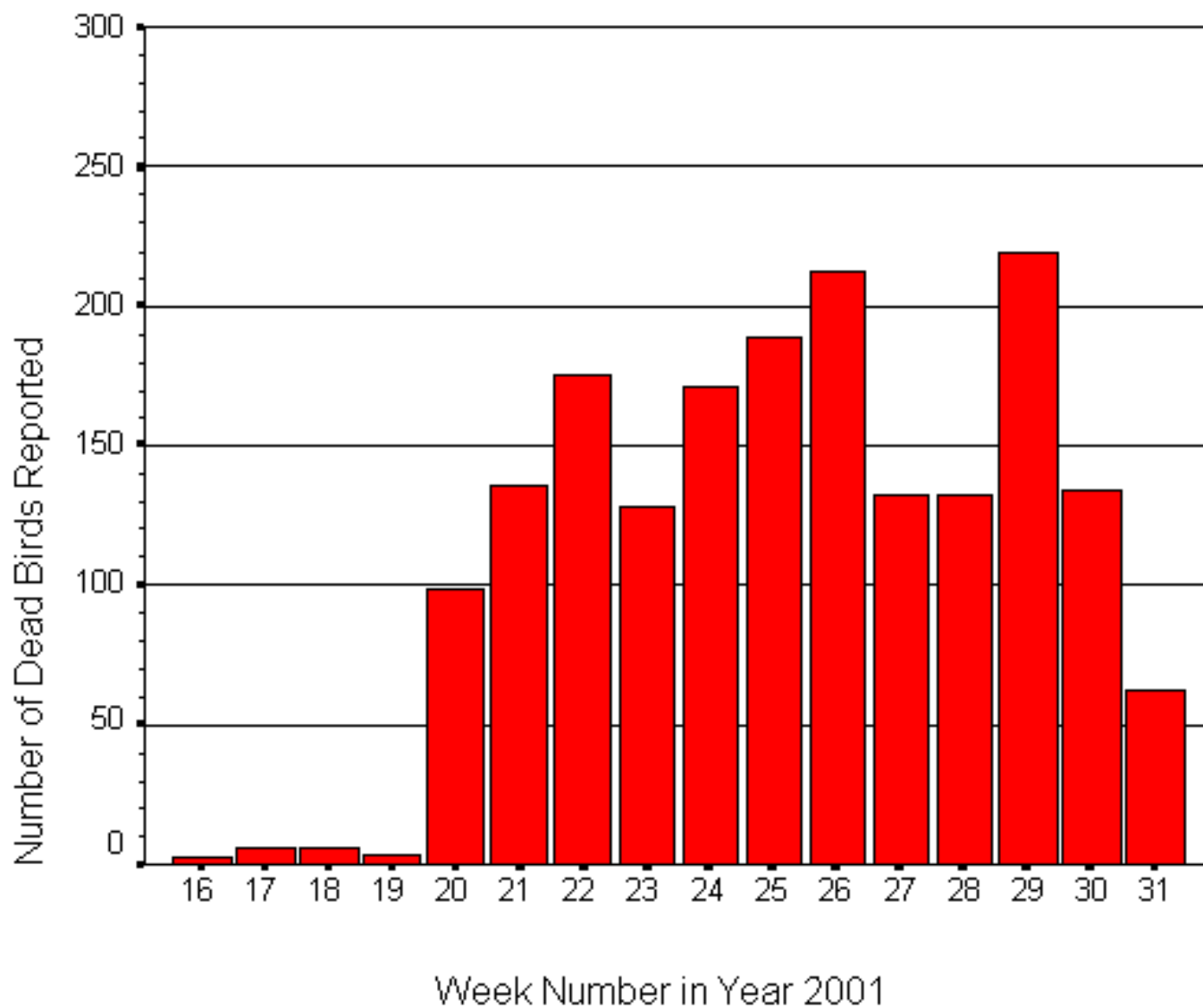
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Dead Bird Surveillance in Ontario

This bulletin summarizes information up to, and including, the 30th week of the Dead Bird Surveillance season (Week 30 = July 23 to 27, 2001). There have been a total of 1,887 reported dead bird sightings and/or submissions. Of these 1,887 birds, 1,126 were picked up and sent to the lab in Guelph for WNV testing ('pick-ups'), of which 693 were submitted for testing at the national laboratory in Winnipeg ('Submissions'). Maps stating the number of dead bird submissions to the lab will be provided weekly to health units.

**Figure 1. Ontario Reported Number of WNV Surveillance Program Dead Birds
August 3, 2001 (N= 1809*)**

* Omitted from graph : 75 reported dead birds = missing, 3 reported dead birds = prior to season



Data : Canadian Cooperative Wildlife Health Centre, Health Canada August 3, 2001

Note : Week 16 = April 16-20, 2001
Week 30 = July 23-27, 2001

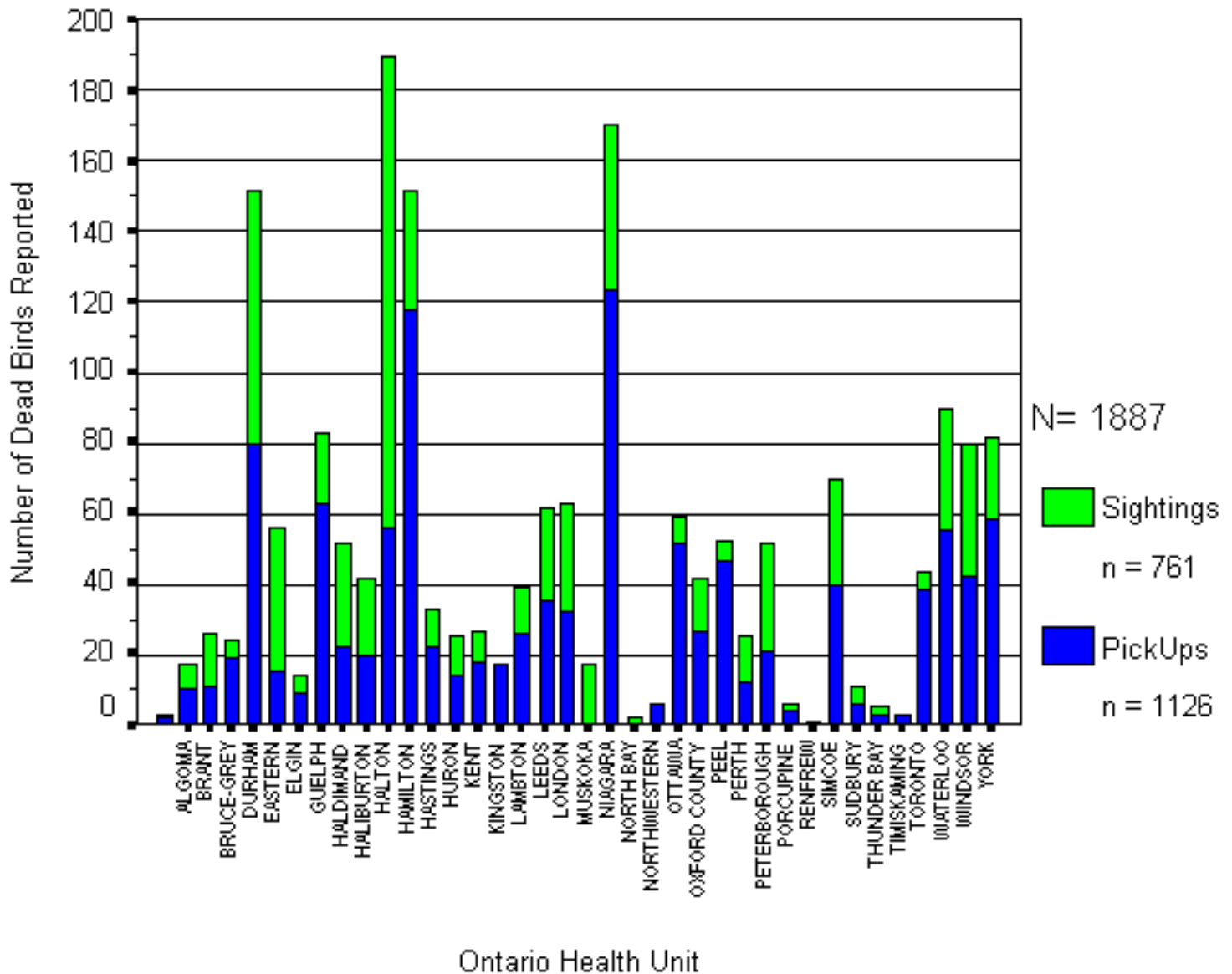
Figure 2. Types of Ontario Dead Birds Reported in 2001 Season as of August 3, 2001

BIRDS

	Frequency	%
American Crow	1043	55.3
Blue Jay	486	25.8
Common Raven	14	.7
Other Birds	344	18.2
Total	1887	100.0

Figure 3. Total Number of Dead Bird Reports in 2001 by Ontario Health Units as of Aug 3, 2001 (n=1,887)

Note** 'PickUps' are health unit submissions to the lab in Guelph, whereas 'Submissions' refer to dead birds sent to the lab in Winnipeg for Federal WNV Testing.



Data Source : Canadian Cooperative Wildlife Health Centre & Health Canada (Aug 3, 01)

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Other News

Worldwide Geographic Distribution

West Nile Virus has been described worldwide and is no longer limited to African and Eurasia.

North American Geographic Distribution

The American media has paid much attention to state health departments and local units with respect to their choices regarding the spraying of chemical pesticides. For more information on US protocols for larviciding and spraying, please refer to US State websites.

United States :

Human cases :

The Florida Department of Health has identified two human cases of West Nile virus in Florida, as of August 3, 2001.

Table 1. Number of birds, mosquito pools, horses and humans that have tested positive for WNV in the USA, 2001.

State	Birds	Mosquito Pools	Horses	Humans
Connecticut	6	2		
D.C.	1			
Florida	27		4	2
Georgia	10			
Massachusetts	23			
Maryland	83	1		
New Jersey	121	79		
New York	20	2		
Ohio	1			
Pennsylvania	1			
Rhode Island	2	2		
Virginia	1			
Total	296	86	4	2

Sourced from Health Canada August 3, 2001

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U.S. National Maps :

Maps of the *United States WNV Surveillance Programs* can be accessed through the United States Geological Survey: Center for Integration of Natural Disaster Information (CINDI) website : http://cindi.usgs.gov/hazard/event/west_nile/west_nile.html

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West Nile Virus Resource Websites

Canada :

Canadian Cooperative Wildlife Health Centre
<http://wildlife.usask.ca/english/frameWestNile.html> (June, 2001)
Canadian Food Inspection Agency
<http://www.inspection.gc.ca/english/ppc/science/surv/wnvsure.shtml> (June, 2001)
Health Canada
<http://www.hc-sc.gc.ca/hpb/lcdc/bid/wnv/index.html#top> (June 4,2001)
New Brunswick Health and Wellness
<http://www.gnb.ca/0053/en/issues/wnvirus.htm> (June 4, 2001)
Pest Management Regulatory Agency (PMRA)
<http://www.hc-sc.gc.ca/pmra-arla/english/index-e.html> (June 8, 2001)

Quebec Santé et Services Sociaux (French)
<http://www.msss.gouv.qc.ca/f/sujets/index.htm> (May 23, 2001)

Region of Peel: West Nile Virus Homepage
<http://www.peel-bugbite.ca> (June 18, 2001)

International :

Hubálek, Z. and J. Halouzka. 1999. West Nile Fever - a reemerging mosquito-borne viral disease in Europe. *Emerging Infectious Diseases* 5(5): 643-650.

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Sopel, J. West Nile fever hits France. BBC News Report, Wed, 11 Oct 2000, 13:21 GMT 14:21 UK [edited]

http://news.bbc.co.uk/hi/english/world/europe/newsid_967000/967048.stm

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http://cindi.usgs.gov/hazard/event/west_nile/west_nile.html (June 15, 2001)

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<http://www.state.nj.us/health/cd/westnile/enceph.htm> (July 4, 2001)

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West Nile Virus Bulletin

Disease Control Service
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Summary of ONTARIO surveillance activities

Human surveillance	No confirmed cases in the year 2001
Mosquito Surveillance	A pilot program for mosquito surveillance will begin in August in 6 Ontario Health Units.
Dead Bird surveillance	A total of 1562 specimens sighted and/or collected in Ontario, however, no positive results have been reported as of July 20th 2001.

Summary of surveillance activities in other jurisdictions to date

Canada

As of July 20th 2001 there have been 2203 dead birds reported to the WNV Dead Bird Surveillance program for all Canadian provinces. None of the dead birds submitted for WNV testing have tested positive for the virus.

United States

Human cases :

On July 23, 2001, the Florida State Department of Health has identified the first 'presumptive' human case of WNV in Florida.

Birds and mosquitoes :

As of reports on July 20, 2001, State Department of Health websites have reported that there have been 79 dead birds that tested positive for West Nile Virus in the United States since the start of the year 2001 surveillance program. The state of New Jersey has reported WNV-positive mosquito pools, bringing the total positive pools in the USA for the year 2001 to 29 mosquito pools, while the state of Maryland has reported their first WNV-positive mosquito pool in the year 2001.

On July 20, 2001, the United States Department of Agriculture reported their first positive equine specimen for WNV. This horse was submitted from the state of Florida.

The purpose of the West Nile Virus (WNV) Bulletins is to provide a summary of the results of the various surveillance activities in Ontario for the current year. This issue will update WNV findings elsewhere in Canada and in the United States.

Health Canada has asked that key health-care providers, including family and emergency room physicians, infectious disease specialists and neurologists, monitor their patients for symptoms of West Nile Virus in 2001. These health-care professionals are being asked to promptly report any probable and confirmed cases of viral encephalitis to local/provincial public health authorities.

- Report suspect WNV case in RDIS under the disease "viral meningitis/encephalitis" as outlined in the April 27th, 2001 letter from Colin D'Cunha to all MOH's and Communicable Disease Coordinators regarding Enhanced Passive Human Surveillance for West Nile Encephalitis.

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Mosquito Surveillance

The Ministry of Health and Long-term Care has requested the assistance of six health units to take part in a mosquito surveillance program. The six health units are Eastern Ontario, Leeds, Hastings, Toronto Public Health, Hamilton, and Niagara. It is anticipated that the program will begin in early August of 2001.

In addition, mosquito surveillance will be implemented in areas from which a dead bird has tested positive for WNV. Currently there are no WNV-positive dead birds in Canada.

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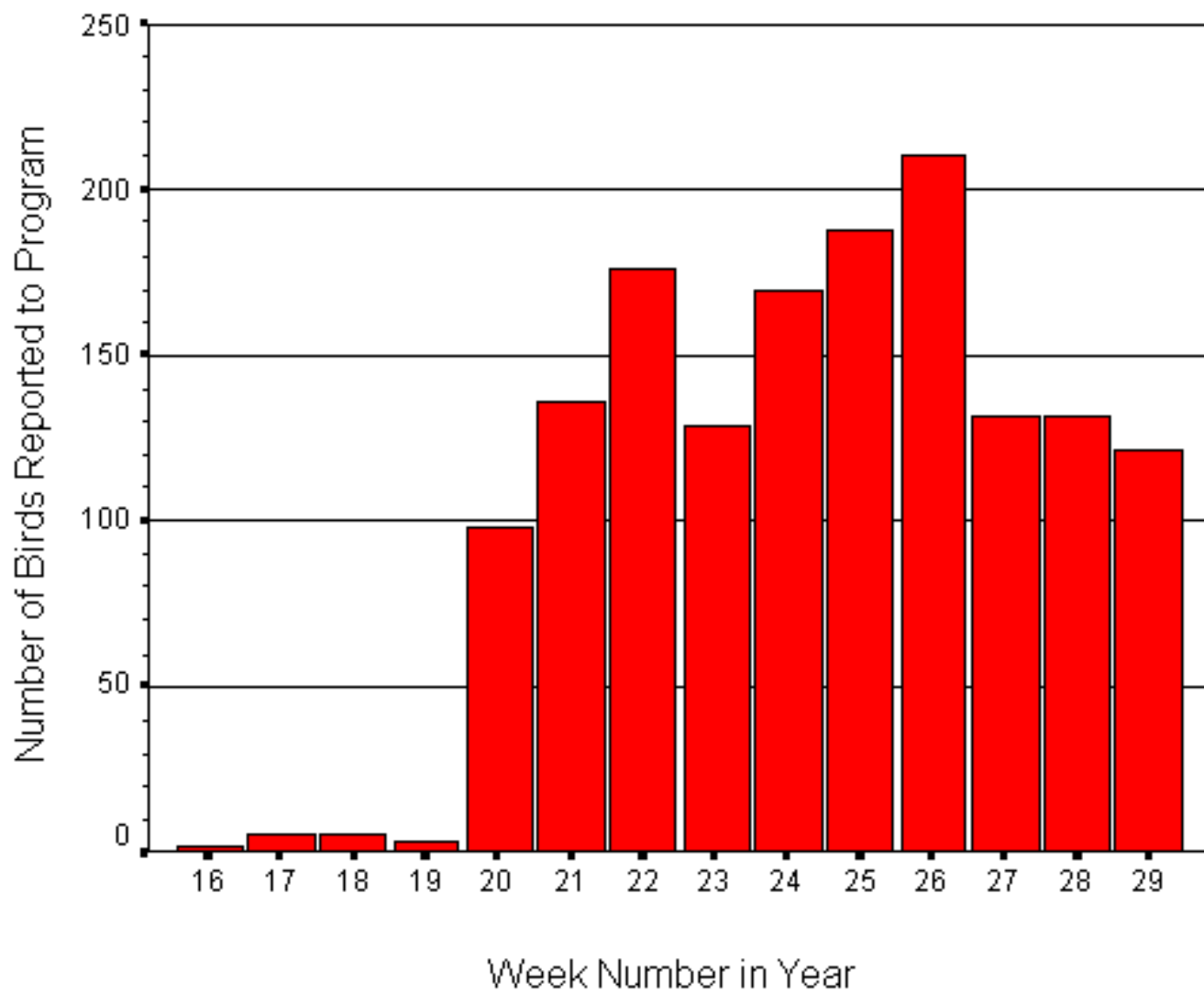
Dead Bird Surveillance

This bulletin summarizes information up to, and including, the 29th week of the Dead Bird Surveillance season (Week 29 = July 16 to 20, 2001). There have been a total of 1562 reported dead bird sightings and/or submissions. Of these 1562 birds, 943 were picked up and sent to the lab in Guelph for WNV testing ('pick-ups'), of which 588 were submitted for testing at the national laboratory in Winnipeg ('Submissions'). Maps stating the number of dead bird submissions to the lab will be provided weekly to health units.

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Figure 1. Ontario Reported Number of WNV Surveillance Program Dead Birds (July 20, 2001) (N=1509)**

** Omitted from graph: 50 reported dead birds = missing, 3 reported dead birds = prior to season**



Data Source : Canadian Cooperative Wildlife Health Centre & Health Canada, July 20, 2001

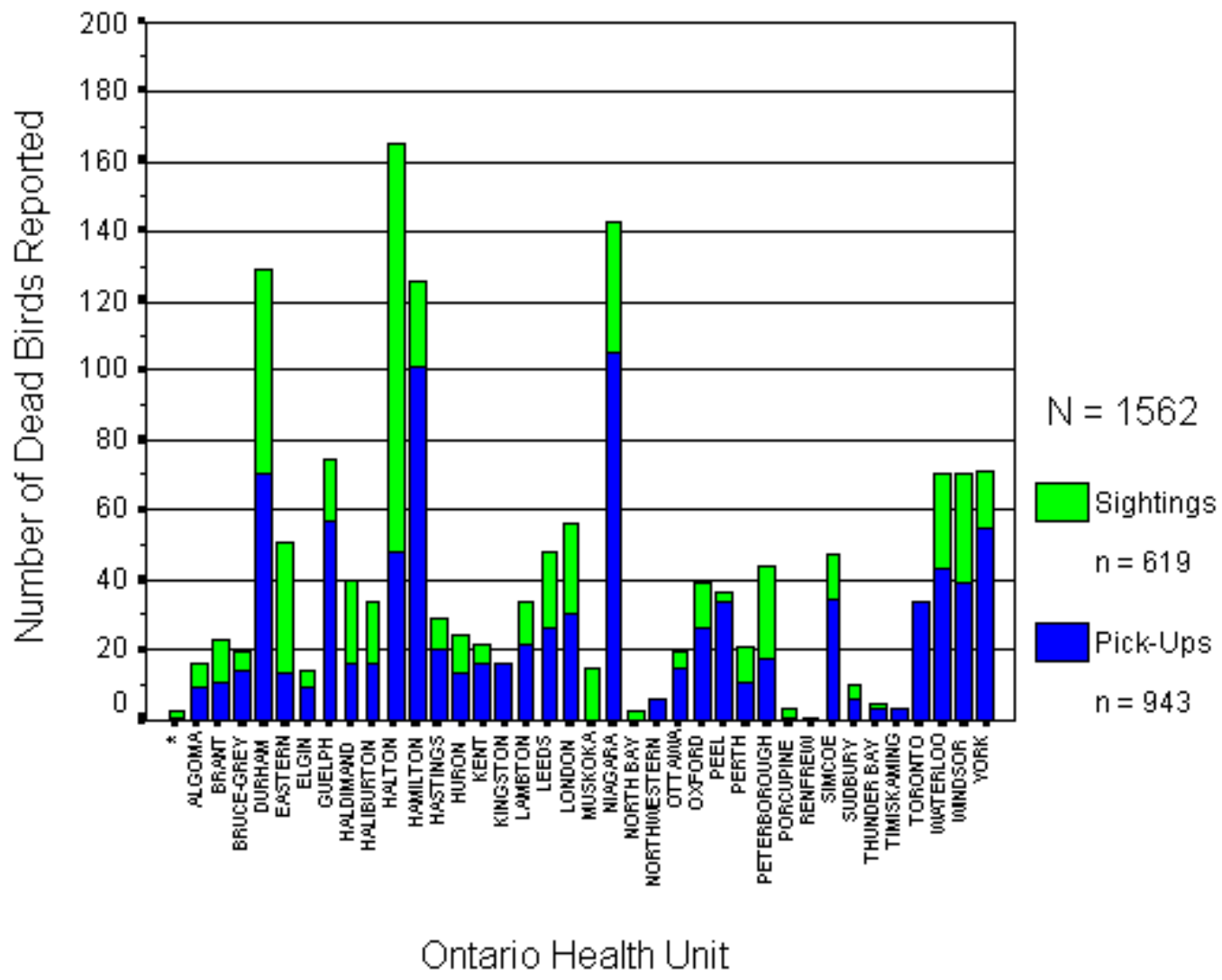
Note : Week 16 = April 16-20, 2001
 Week 29 = July 16-20, 2001

Figure 2. Types of Ontario Dead Birds Reported in 2001 Season as of July 20, 2001 (N=1562)

	Frequency	Percent
American Crow	822	52.6
Blue Jay	399	25.5
Common Raven	13	0.8
Other Birds	328	21.0
Total	1562	100.0

Figure 3. Total Number of Dead Bird Reports in 2001 by Ontario Health Units as of July 20, 2001 (n=1562)

Note** PickUps' are health unit submissions to the lab in Guelph, whereas 'Submissions' refer to dead birds sent to the lab in Winnipeg for Federal WNV Testing.



Data Source : Canadian Cooperative Wildlife Health Centre & Health Canada (20/07/01)

Other News

Worldwide Geographic Distribution

West Nile Virus has been described worldwide, and is no longer limited to African and Eurasia.

North American Geographic Distribution

The American media has paid much attention to state health departments and local units with respect to their choices regarding the spraying of chemical pesticides. For more information on US protocols for larviciding and spraying, please refer to US State websites.

United States :

Human cases: The Florida Department of Health has identified the first presumptive human case of West Nile virus in Florida, as of July 23, 2001. The Madison County patient developed acute encephalitis in mid-July. Confirmation of the West Nile virus results will be available by end of week.

Birds :

Table 1. Number of dead birds in 2001 that tested positive for WNV in the US, reported as of July 18th, 2001.

State	# Reported Positive Dead Birds	Date of last update of Positive Bird Results
Connecticut	3	July 18, 2001
Florida	4	July 18, 2001
Georgia	1	July 18, 2001
Maryland	25	July 18, 2001
Massachusetts	1	July 18, 2001
New Jersey	34	July 18, 2001
New York	8*	July 18, 2001
Rhode Island	2	July 18, 2001
Washington, D.C.	1	July 18, 2001
TOTAL	79	

* New York State has reported 7 WNV-positive dead birds, plus one live asymptomatic positive bird = 8 total

Mosquitoes :

As of July 18th, 2001 the State of New Jersey announced a total of 29 WNV-positive mosquito pools for this year. Both Maryland and New York State released information on July 18, 2001 of one WNV-positive mosquito pool in each state for the year 2001.

Horses and Other Animals :

The first equine case of WNV was confirmed by the USDA-APHIS Veterinary Services' National Veterinary Services Laboratories on July 20, 2001. This finding is the first to be confirmed positive in a horse in the year 2001. The horse was submitted from the state of Florida.

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U.S. National Maps :

Maps of the *United States WNV Surveillance Programs* can be accessed through the United States Geological Survey: Center for Integration of Natural Disaster Information (CINDI) website :
cindi.usgs.gov/hazard/event/west_nile/west_nile.html

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Maps

Dead Birds Submitted for West Nile Virus Diagnosis by Health Unit in Ontario as of July 16, 2001. (MS Word)

West Nile Virus Resource Websites

Canada :

Canadian Cooperative Wildlife Health Centre
<http://wildlife.usask.ca/english/frameWestNile.htm> (June, 2001)

Canadian Food Inspection Agency
<http://www.cfia-acia.agr.ca/english/ppc/science/surv/wnvsure.shtml> (June, 2001)

Health Canada
<http://www.hc-sc.gc.ca/hpb/lcdc/bid/wnv/index.html#top> (June 4,2001)

New Brunswick Health and Wellness
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<http://www.cdc.gov/ncidod/eid/vol5no5/hubalek.htm>

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Sopel, J. West Nile fever hits France. BBC News Report, Wed, 11 Oct 2000, 13:21 GMT 14:21 UK [edited]
http://news.bbc.co.uk/hi/english/world/europe/newsid_967000/967048.stm

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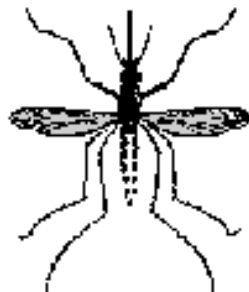
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Summary of ONTARIO surveillance activities

Human surveillance

No confirmed cases in the year 2001

Mosquito Surveillance

Mosquito surveillance will be implemented in areas from which a dead bird has tested positive for West Nile Virus.

Dead Bird surveillance

A total of 1160 specimens sighted and/or collected in Ontario, however, no positive results have been reported as of July 5th 2001.

Summary of surveillance activities in other jurisdictions to date

Canada

As of July 5th 2001 there have been 1564 dead birds reported to the WNV Dead Bird Surveillance program for all Canadian provinces. None of the dead birds submitted for WNV testing have tested positive for the virus.

United States

Human cases :

As of July 6th 2001, there have been no reported human cases of West Nile Virus in the United States in the year 2001.

Birds and mosquitoes :

As of reports on July 6, 2001, State Department of Health websites have reported that there have been 28 dead birds that tested positive for West Nile Virus in the United States since the start of the year 2001 surveillance program. The state of New Jersey has reported WNV-positive mosquito pools, bringing the total positive pools in the USA for the year 2001 to 2 mosquito pools.

West Nile Virus Surveillance in Ontario

The purpose of the West Nile Virus (WNV) Bulletins is to provide a summary of the results of the various surveillance activities in Ontario for the current year. This issue will offer an update on findings elsewhere in Canada and in the United States. Additionally, this issue of the WNV Bulletin will describe symptoms common to West Nile Virus.

West Nile Virus Activities in Ontario for the Year 2001

Human Encephalitis Surveillance

Similar to the activities implemented in 2000, Health Canada has asked that key health-care providers, including family and emergency room physicians, infectious disease specialists and neurologists, monitor their patients for symptoms of West Nile Virus in 2001. These health-care professionals are being asked to promptly report any probable and confirmed cases of viral encephalitis to local/provincial public health authorities.

Symptoms of West Nile Virus in Humans

Most individuals infected with WNV either show mild flu-like symptoms (fever, head/body aches) or no symptoms at all before fully recovering. Symptoms may begin anywhere from 3 to 15 days following the bite from a WNV-infected mosquito.

In the immunocompromised, the elderly, and the very young, WNV infection can result in serious illness such as meningitis or encephalitis. Symptoms among these individuals with these conditions may include rapid onset of severe headache, high fever, stiff neck, vomiting, drowsiness, confusion, muscle weakness, loss of consciousness, and in severe instances death may occur. Individuals experiencing onset of these symptoms should seek medical care immediately.

REMINDER

1. Physicians (Hospital, clinic, private practice)

- Send blood samples from suspect WNV patients to the Central Public Health Laboratory (CPHL) in Toronto for serological testing :
Central Public Health Laboratory
81 Resources Road
Toronto, ON
M9P 3T1
- Report suspect WNV case immediately to local Medical Officer of Health

- Fax "**Patient Report Form**" to local Medical Officer of Health

2. Health Units :

- Report suspect WNV case immediately by telephone to Dr. Margaret Fearon
Dr. Margaret Fearon 416-235-5725 (pager: 416-715-4209)
 (After hours duty officer: 416-605-6113)
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- Report suspect WNV case in RDIS under the disease "viral meningitis/encephalitis" as outlined in the April 27th, 2001 letter from Colin D'Cunha to all MOH's and Communicable Disease Coordinators regarding Enhanced Passive Human Surveillance for West Nile Encephalitis.

Mosquito Surveillance

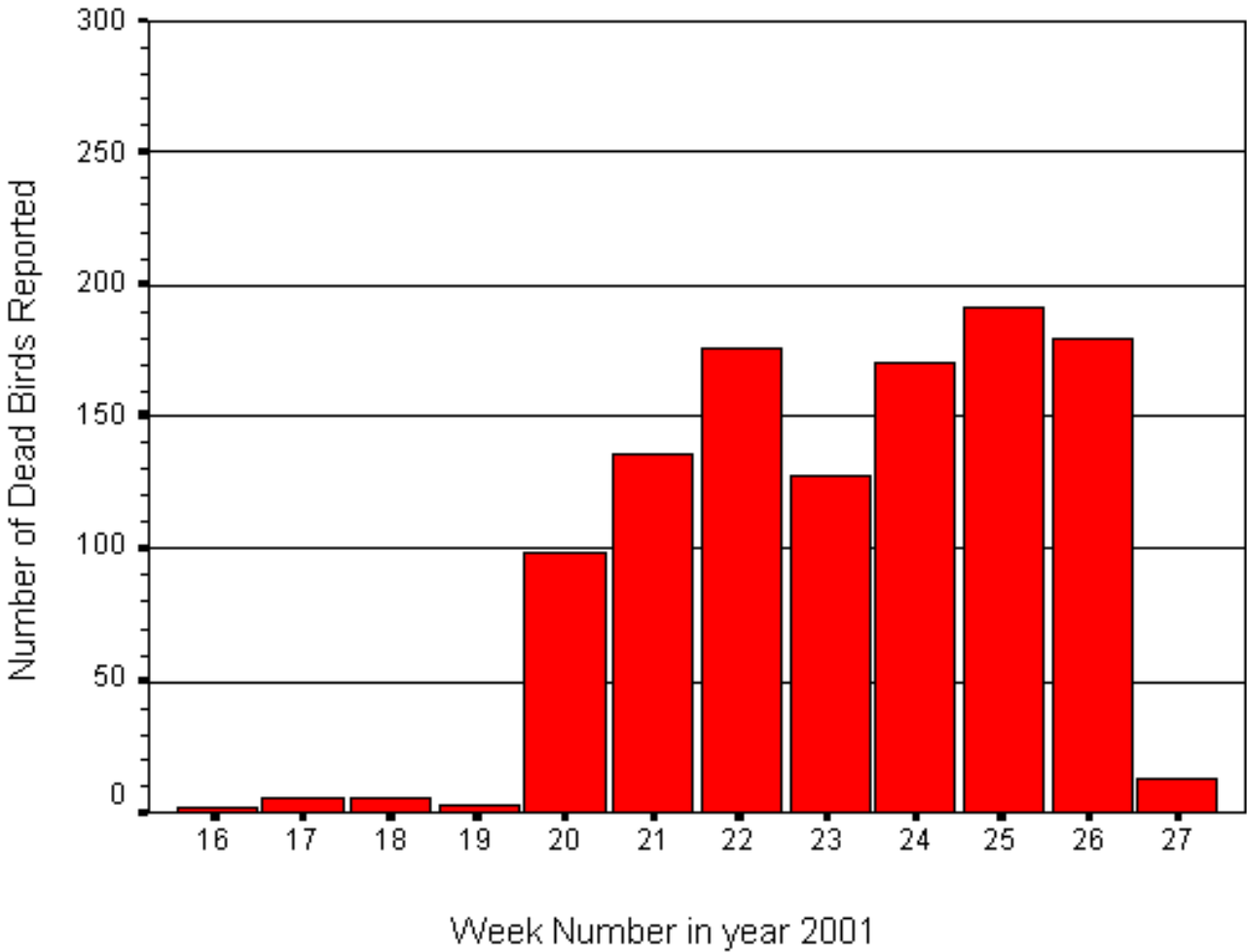
Mosquito surveillance will be implemented in areas from which a dead bird has tested positive for WNV.

Dead Bird Surveillance

This bulletin summarizes information up to, and including, the 27th week of the Dead Bird Surveillance season (Week 27 = July 2 to 6, 2001). There have been a total of 1160 reported dead bird sightings and/or submissions. Of these 1160 birds, 666 were submitted to the lab in Guelph for WNV testing ('pick-ups'), while 409 of those submitted to Guelph were sent to the lab in Winnipeg ('Submissions'). Maps stating the number of dead bird submissions to the lab will be provided weekly to health units.

Figure 1. Ontario Reported Number of WNV Surveillance Program Dead Birds (July 5, 2001) (N=1111)**

** Omitted from graph: 46 reported dead birds = missing, 3 reported dead birds = prior to season**



Data Source : Canadian Cooperative Wildlife Health Centre & Health Canada, July 5, 2001

Note : Week 16 = April 16-20, 2001
Week 27 = July 2-6, 2001*

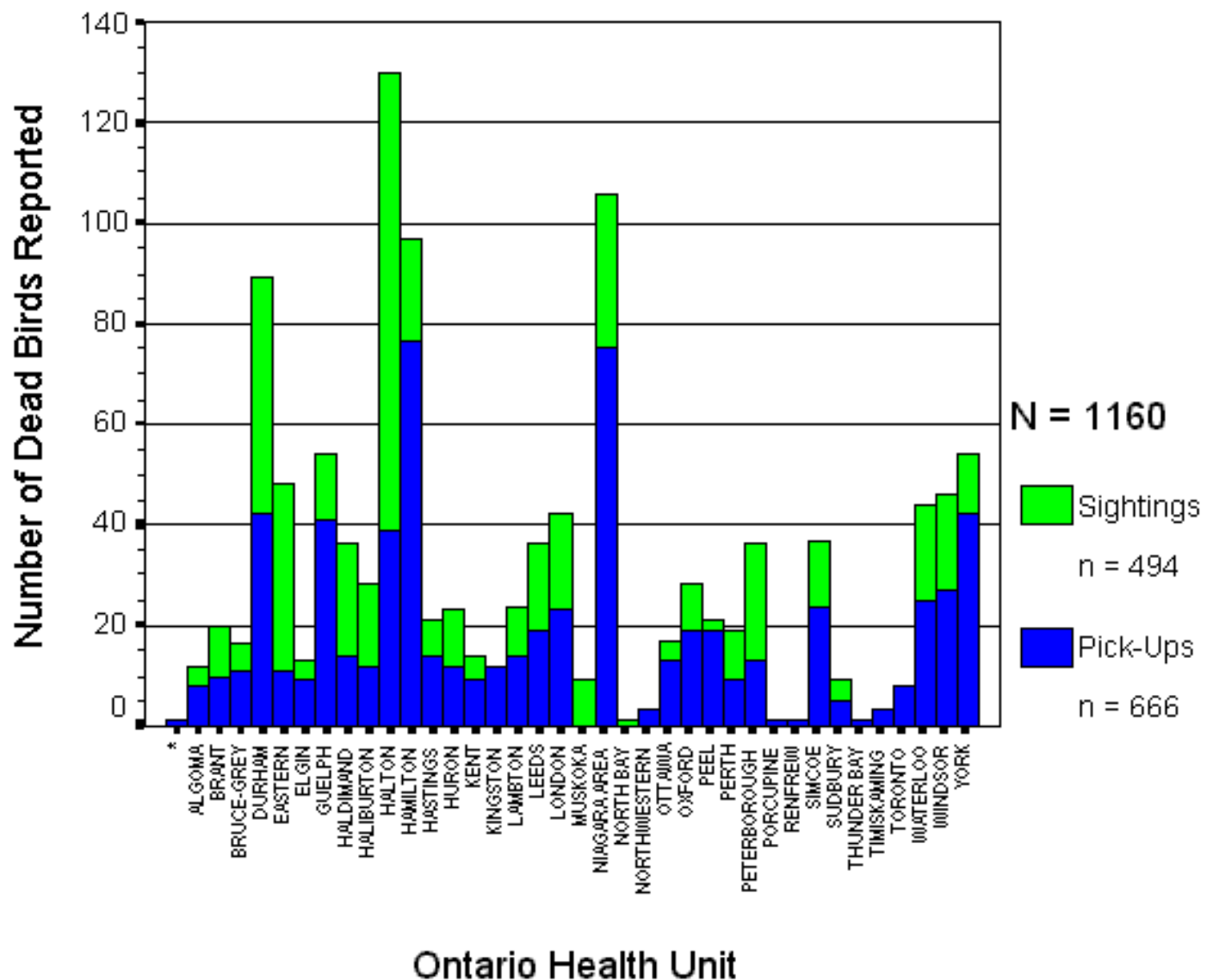
* Week 27 data does not include reports from July 6, 2001.

Figure 2. Types of Ontario Dead Birds Reported in 2001 Season as of July 5, 2001 (N=1160)

	Frequency	Percent
American Crow	567	48.9
Blue Jay	283	24.4
Common Raven	11	0.9
Other Birds	299	25.8
Total	1160	100.0

Figure 3. Number of Dead Bird Reports in 2001 by Ontario Health Units as of July 5, 2001 (n=1160)

Note** PickUps' are health unit submissions to the lab in Guelph, whereas 'Submissions' refer to dead birds sent to the lab in Winnipeg for Federal WNV Testing.



Other News

Worldwide Geographic Distribution

West Nile Virus has been described worldwide, and is no longer limited to African and Eurasia.

North American Geographic Distribution

The American media has paid much attention to state health departments and local units with respect to their choices regarding the spraying of chemical pesticides. For more information on US protocols for larviciding and spraying, please refer to US State websites.

United States :

Human cases: As of July 6th 2001, there have been no reported positive human cases of WNV in the United States in 2001.

Birds :

Table 1. Number of dead birds and mosquito pools in 2001 that tested positive for WNV in the US, reported as of July 6th, 2001.

State	# Reported Positive Dead Birds	# Reported Positive-tested Mosquito Pools	Date of last update of Positive Bird Results
Connecticut	2	0	July 5, 2001
Delaware	0	0	July 6, 2001
Maine	0	0	July 3, 2001
Maryland	8	0	July 5, 2001
Massachusetts	0	0	July 3, 2001
New Hampshire	0	0	July 6, 2001
New Jersey	14	2	July 2, 2001
New York	2	0	July 5, 2001
Ohio	0	0	July 2, 2001
Pennsylvania	0	0	July 3, 2001
Rhode Island	2	0	June 28, 2001
TOTAL	28	2	

Mosquitoes :

As Of June 29, 2001, the state of Delaware announced positive test results for WNV in a mosquito pool from Little Creek (East of Dover), in addition to the 2 positive mosquito pools found in the state of New Jersey.

U.S. National Maps :

Maps of the *United States WNV Surveillance Programs* can be accessed through the United States Geological Survey: Center for Integration of Natural Disaster Information (CINDI) website :

cindi.usgs.gov/hazard/event/west_nile/west_nile.html

Maps

[Dead Birds Submitted for West Nile Virus Diagnosis by Health Unit in Ontario as of July 9, 2001.](#) (MS Word)

[Birds Submitted for West Nile Virus Diagnosis by Health Region in Canada as of July 9, 2001.](#) (MS Word)

West Nile Virus Resource Websites

Canada :

Canadian Cooperative Wildlife Health Centre
<http://wildlife.usask.ca/english/frameWestNile.html> (June, 2001)
 Canadian Food Inspection Agency
<http://www.cfia-acia.agr.ca/english/ppc/science/surv/wnvsure.shtml> (June, 2001)
 Health Canada
<http://www.hc-sc.gc.ca/hpb/lcdc/bid/wnv/index.html#top> (June 4, 2001)
 New Brunswick Health and Wellness
<http://www.gnb.ca/0053/en/issues/wnvirus.htm> (June 4, 2001)
 Pest Management Regulatory Agency (PMRA)
<http://www.hc-sc.gc.ca/pmra-arla/english/index-e.html> (June 8, 2001)
 Quebec Santé et Services Sociaux (French)
<http://www.msss.gouv.qc.ca/f/sujets/index.htm> (May 23, 2001)
 Region of Peel: West Nile Virus Homepage
<http://www.peel-bugbite.ca> (June 18, 2001)

International :

Hubálek, Z. and J. Halouzka. 1999. West Nile Fever - a reemerging mosquito-borne viral disease in Europe. Emerging Infectious Diseases 5(5): 643-650.
<http://www.cdc.gov/ncidod/eid/vol5no5/hubalek.htm>
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<http://id.mescap.com/reuters/prof/2001/05/05.25/20010524drqd003.html>
 Sopel, J. West Nile fever hits France. BBC News Report, Wed, 11 Oct 2000, 13:21 GMT 14:21 UK [edited]
http://news.bbc.co.uk/1/hi/english/world/europe/newsid_967000/967048.stm

U.S.A. :

United States Geological Survey: Center for Integration of Natural Disaster Information (CINDI)
http://cindi.usgs.gov/hazard/event/west_nile/west_nile.html (June 15, 2001)
 Connecticut Department of Environmental Protection
<http://dep.state.ct.us/mosquito/index.asp> (June 4, 2001)
 Cornell Environmental Risk Assessment Program: West Nile Virus
<http://www.cfe.cornell.edu/risk/WNVmainpage.html> (May 25, 2001)
 District of Columbia Department of Health
<http://www.dchealth.com/> (June 4, 2001)
 New York City Department of Health, West Nile Virus Information
<http://www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html> (June 4, 2001)
 New Jersey Department of Health
<http://www.state.nj.us/health/cd/westnile/enceph.htm> (July 4, 2001)
 Penn State College of Agricultural Sciences

<http://www.pested.psu.edu/spWestNile.html> (July 4, 2001)

Road Island Department of Health

<http://www.uri.edu/research/eee/wnv.html> (July 4, 2001) Vermont Department of Health

<http://www.state.vt.us/health/wnile.htm> (June 4, 2001)

Acknowledgements

The contribution of the following agencies and individuals in the publication of the *West Nile Virus Bulletin* is greatly appreciated :

Ontario Ministry of Health and Long-Term Care: Public Health Branch (Dr. Colin D'Cunha, Dr. Charles Le Ber, Dr. Dean Middleton)

Canadian Cooperative Wildlife Health Centre (Dr. Ian Barker, Ron Templeman)

Health Canada (Dr. Peter Buck, Rob Meyers)

FOR MORE INFORMATION

Comments, questions and suggestions about surveillance results in this bulletin should be directed to :



Danielle Stein,

Acting WNV Surveillance Coordinator,

Disease Control Service, Tel: 416 327-7452,

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Dr. Dean Middleton,

Veterinary Consultant,

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Tel: 416-327-7422,

E-mail: dean.middleton@moh.gov.on.ca

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West Nile Virus Bulletin

Disease Control Service
Public Health Branch

Volume 2 / Issue 2 June 22, 2001



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Summary of ONTARIO surveillance activities

Human surveillance	No confirmed cases in the year 2001
Mosquito Surveillance	Mosquito surveillance will be implemented in areas from which a dead bird has tested positive for West Nile Virus.
Dead Bird surveillance	A total of 861 specimens sighted and/or collected in Ontario, however, no positive results have been reported as of June 22nd 2001.

Summary of surveillance activities in other jurisdictions to date

Canada

As of June 22nd 2001 there have been 1143 dead birds reported to the WNV Dead Bird Surveillance program for all Canadian provinces. None of the dead birds submitted for WNV testing have tested positive for the virus.

United States

Human cases :

As of June 22nd 2001, there have been no reported human cases of West Nile Virus in the United States in the year 2001.

Birds and mosquitoes :

As of June 22nd, 2001, State Department of Health websites have reported that there have been 22 dead birds that tested positive for West Nile Virus in the United States since the start of the year 2001 surveillance program.

West Nile Virus Activities in Ontario for the Year 2001

Human Encephalitis Surveillance

Similar to the activities implemented in 2000, Health Canada has asked that key health-care providers, including family and emergency room physicians, infectious disease specialists and neurologists, monitor their patients for symptoms of West Nile Virus in 2001. These health-care professionals are being asked to promptly report any probable and confirmed cases of viral encephalitis to local/provincial public health authorities.

REMINDER

1. Physicians (Hospital, clinic, private practice)

- Send blood samples from suspect WNV patients to the Central Public Health Laboratory (CPHL) in Etobicoke for serological testing :
 - Central Public Health Laboratory
 - 81 Resources Road
 - Toronto, ON
 - M9P 3T1
- Report suspect WNV case immediately to local Medical Officer of Health

2. Health Units :

- Report suspect WNV case immediately by telephone to Dr. Margaret Fearon
Dr. Margaret Fearon 416-235-5725 (pager: 416-715-4209)
 (After hours duty officer: 416-605-6113)
- Report suspect WNV case immediately by telephone to Dr. Chuck Le Ber or Dr. Dean Middleton at the Ministry of Health and Long-Term Care, Public Health Branch.

Dr. Chuck Le Ber 416-327-7421
Dr. Dean Middleton 416-327-7422
- Report suspect WNV case in RDIS under the disease "viral meningitis/encephalitis" as outlined in the April 27th, 2001 letter from Colin D'Cunha to all MOH's and Communicable Disease Coordinators regarding Enhanced Passive Human Surveillance for West Nile Encephalitis.

Mosquito Surveillance

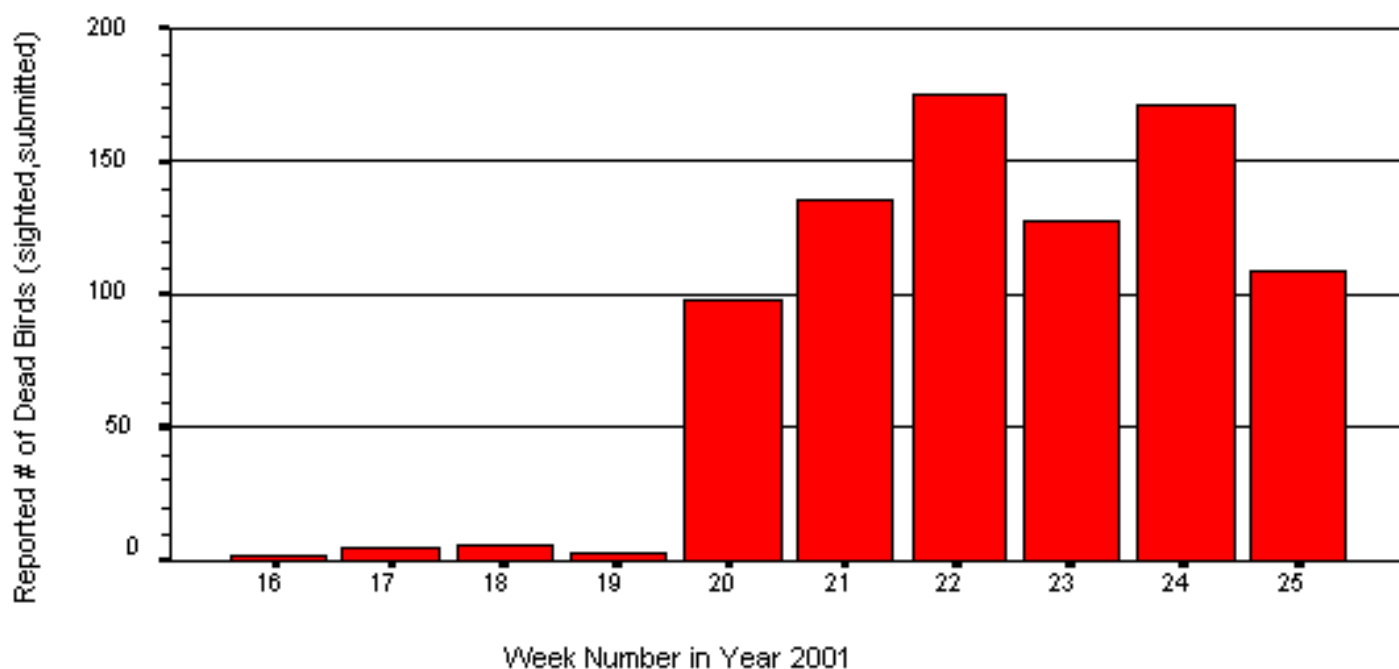
Mosquito surveillance will be implemented in areas from which a dead bird has tested positive for WNV.

Dead Bird Surveillance

This bulletin summarizes information up to, and including, the 25th week of the Dead Bird Surveillance season (Week 25 = June 18-22, 2001). There have been a total of 869 reported dead bird sightings and/or submissions. Of these 869 birds, 480 were submitted to the lab in Guelph for WNV testing, while 283 of those submitted to Guelph were sent to the lab in Winnipeg. Weekly maps stating the number of dead bird submissions to the lab will be provided weekly to health units.

Figure 1. Number of Dead Bird Reported to WNV Surveillance Program as of June 22, 2001 for Ontario. (N=834)**

** Omitted from graph: 33 reported dead birds = missing, 2 reported dead bird = prior to season**



Data: Canadian Cooperative Wildlife Health Centre

& Health Canada June 22, 2001

Note : Week 16 = April 16-20, 2001
Week 25 = June 18-22, 2001

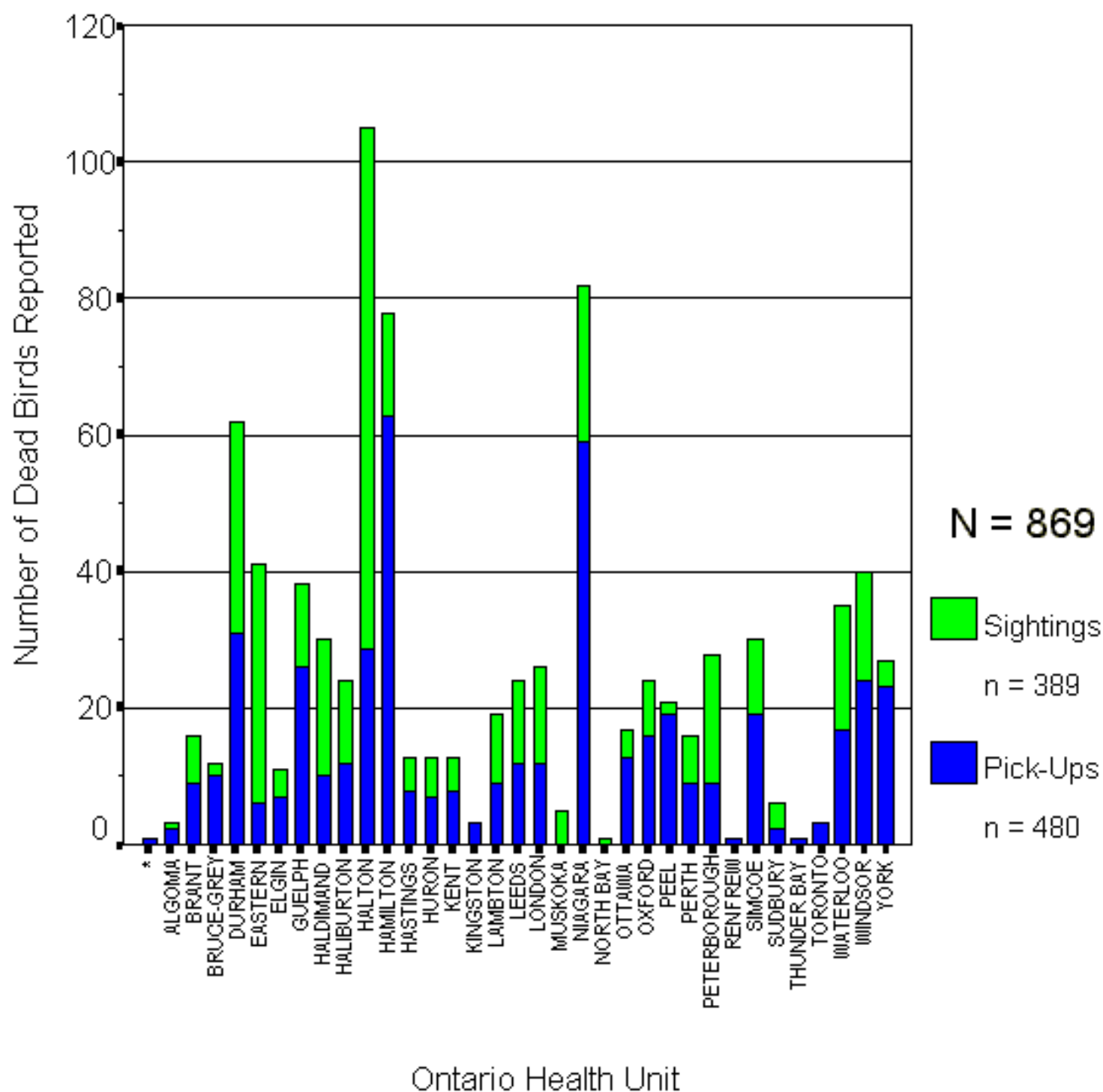
Figure 2. Types of Ontario Dead Birds Reported in 2001 Season as of June 22, 2001 (N=869)

	Frequency	Percent
American Crow	399	45.9
Blue Jay	204	23.5

Common Raven	4	0.5
Other Birds	262	30.1
Total	869	100.0

Figure 3. Number of Dead Bird Reports in 2001 by Ontario Health Units as of June 22, 2001 (n=869)

Note** 'PickUps' are health unit submissions to the lab in Guelph, whereas 'Submissions' refer to dead birds sent to the lab in Winnipeg for Federal WNV Testing.



Data Source : Canadian Cooperative Wildlife Health Centre & Health Canada (22/06/01)

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Other News

Worldwide Geographic Distribution

West Nile Virus has been described worldwide, and is no longer limited to African and Eurasia. Some historical outbreaks of WNV include the following :

Algeria 1994	Russia 1999
Romania 1996-97	United States 1999-2000
Czech Republic 1997	France 2000
Democratic Republic of the Congo 1998	

North American Geographic Distribution

As the season progresses, the attention given to West Nile Virus in North American has increased dramatically. Newspapers and newscasts have featured prevention activities, warning North Americans to avoid mosquitoes and report dead birds to local public health authorities.

United States :

Human cases: As of June 22nd 2001, there have been no reported human cases of WNV in the United States in 2001.

Birds :

Table 1. Reported number of dead birds in 2001 that tested positive for WNV in the US as of June 22nd, 2001.

State	# Dead Birds
Connecticut	1
Maryland	3
Massachusetts	0
New Hampshire	0
New Jersey	14
New York	2
Ohio	0
Pennsylvania	0
Rhode Island	2
TOTAL	22

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U.S. National Maps :

Maps of the *United States WNV Surveillance Programs* can be accessed through the United States Geological Survey: Center for Integration of Natural Disaster Information (CINDI) website :
cindi.usgs.gov/hazard/event/west_nile/west_nile.html

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Maps

Dead Birds Submitted for West Nile Virus Diagnosis by Health in Ontario as of June 25, 2001. (MS Word)

Birds Submitted for West Nile Virus Diagnosis by Health Region in Canada as of June 29, 2001. (MS Word)

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West Nile Virus Resource Websites

Canada :

Canadian Cooperative Wildlife Health Centre
<http://wildlife.usask.ca/WestNileAlertHTML/WestNileAlertINDEX.htm> (June, 2001)

Canadian Food Inspection Agency
<http://www.cfia-acia.agr.ca/english/ppc/science/surv/wnvsure.shtml> (June, 2001)

Health Canada
<http://www.hc-sc.gc.ca/hpb/lcdc/bid/wnv/index.html#top> (June 4, 2001)

New Brunswick Health and Wellness
<http://www.gnb.ca/0053/en/issues/wnvirus.htm> (June 4, 2001)

Pest Management Regulatory Agency (PMRA)
<http://www.hc-sc.gc.ca/pmra-arla/english/index-e.html> (June 8, 2001)

Quebec Santé et Services Sociaux (French)
<http://www.msss.gouv.qc.ca/f/sujets/index.htm> (May 23, 2001)

Region of Peel: West Nile Virus Homepage
<http://www.peel-bugbite.ca> (June 18, 2001)

International :

Hubálek, Z. and J. Halouzka. 1999. West Nile Fever - a reemerging mosquito-borne viral disease in Europe. *Emerging Infectious Diseases* 5(5): 643-650.
<http://www.cdc.gov/ncidod/eid/vol5no5/hubalek.htm>

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<http://id.mescap.com/reuters/prof/2001/05/05.25/20010524drqd003.html>

Sopel, J. West Nile fever hits France. BBC News Report, Wed, 11 Oct 2000, 13:21 GMT 14:21 UK [edited]
http://news.bbc.co.uk/hi/english/world/europe/newsid_967000/967048.stm

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District of Columbia Department of Health
<http://www.dchealth.com/> (June 4,2001)
New York City Department of Health, West Nile Virus Information
<http://www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html> (June 4,2001)
Vermont Department of Health
<http://www.state.vt.us/health/wnile.htm> (June 4,2001)

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Disease Control Service
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Summary of Ontario surveillance activities

Human Surveillance	No confirmed cases
Mosquito Surveillance	Mosquito surveillance will be implemented in areas from which a dead bird has tested positive for West Nile Virus.
Dead Bird surveillance	A total of 463 specimens sighted and/or collected in Ontario, however no positive results have been reported as of June 5th 2001.

Summary of surveillance activities in other jurisdictions to date

Other Canada

As of June 5th 2001, none of the dead birds submitted tested positive for West Nile Virus.

United States

Human cases :

As of June 5th 2001, there have been no reported human cases of West Nile Virus in the United States.

Birds and mosquitoes :

As of June 1st, 2001, Arbo-NET reported to the CDC Atlanta that there have been 15 dead birds that tested positive for West Nile Virus in the United States since the start of the year 2001 surveillance program.

West Nile Virus Surveillance in Ontario

This issue is the first issue of the Ontario West Nile Virus (WNV) Bulletin for this year. Its purpose is to provide some background information and a summation of the results of the various surveillance activities in Ontario from the year 2000. Additionally, the issue will offer an update on other findings elsewhere in Canada and in the United States. This issue will also outline the changes Ontario has made to its 2001 Surveillance Programs since 2000.

Update of Year 2000 West Nile Virus Activities in Ontario

Sentinel Chicken Surveillance

On October 13, 2000, the sentinel chicken component of the West Nile Virus (WNV) Surveillance Program closed for the season, at which point none of the chickens had become infected with West Nile Virus.

It was during the 2000 mosquito season that sentinel chickens were used to determine whether they would be equally successful in the early detection of the West Nile Virus. Approximately 600 sentinel chickens were used to monitor for evidence of the West Nile Virus during the 2000 season in strategic locations spanning from Saskatchewan to Atlantic Canada.

American evidence last year indicated that sentinel chicken surveillance did not detect West Nile Virus prior to dead bird or human surveillance. No West Nile Virus was detected in any sentinel chickens tested in Canada.

As a result of these findings, Ontario is not conducting sentinel chicken surveillance for 2001. However, sentinel chicken surveillance for Western Equine Encephalitis is in place to also assess for West Nile Virus in the provinces of Manitoba and Saskatchewan.

Therefore, the focus for early detection of WNV activity is for the public to report, and public health workers to submit dead corvids for West Nile Virus testing.

Human Encephalitis Surveillance

Active surveillance for human meningo-encephalitis from sentinel hospitals ceased at the end of October 2000.

As of the 20th of October 2000, 174 individuals, ranging from 2 months to 92 years of age, were deemed suspect cases for West Nile Virus. Both community physicians and sentinel hospital physicians reported these cases through enhanced passive surveillance and active surveillance.

At the end of the 2000 surveillance season, no human cases of West Nile Virus infection had been confirmed in Ontario.

Mosquito Surveillance

As of October 14th 2000, the mosquito component of the surveillance for the season was discontinued.

Dead Bird Surveillance

The Ontario Region Laboratory of the Canadian Cooperative Wildlife Health Centre (CCWHC) in Guelph ceased to accept dead bird submissions for West Nile Virus testing for the 2000 season as of October 6, 2000.

For the 2000 surveillance season, the CCWHC received a total of 1531 dead bird submissions for West Nile Virus. During the 20 weeks of observation, the mean number of dead birds submitted was 64 per week (range of 2 to 462). None of the 1531 dead birds were found to be positive for the West Nile Virus.

The CCWHC has reported that as of February 1, 2001, the virus had not been found in any of the 2,288 birds in Canada examined since the

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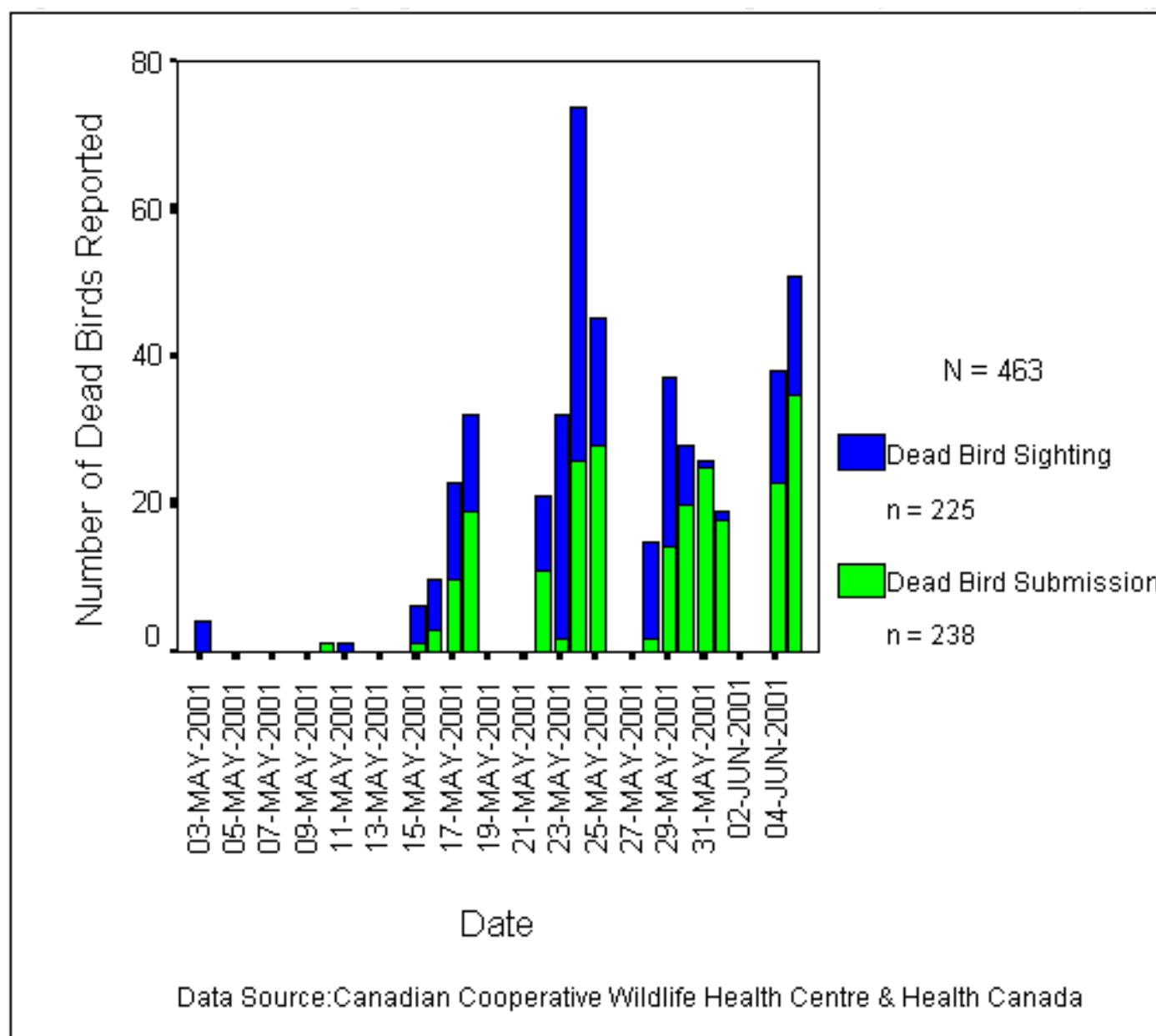
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Mosquito surveillance will be implemented in areas from which a dead bird has tested positive for WNV.

Dead Bird Surveillance

The 2001 Dead Bird Surveillance season has begun, with a total of 463 reported dead bird sightings and/or submissions as of June 5th 2001. Of these 463 birds, 238 were submitted to the lab in Guelph for WNV testing, while 140 of those submitted to Guelph were sent to the lab in Winnipeg. Attached are two maps, which contain the number of birds submitted for testing in both Ontario and in Eastern Canada (Saskatchewan and East). These maps will be provided weekly to health units and reported in each issue of the West Nile Virus Bulletin.

Figure 1. Number of Dead Bird Sightings & Submissions for WNV Testing as of June 5, 2001 for Ontario. (N=463)



The following table lists the bird species in the USA from which West Nile Virus was confirmed.

Table 1. North American Bird Species in which WNV was identified in 1999¹

Mallard*2.	Black-crowned Night Heron*	Rock Dove
American Kestrel	Sandhill Crane*	Blue Jay
Cooper's Hawk	Herring Gull	American Crow
Red-tailed Hawk	Laughing Gull*	Fish Crow
Broad-winged Hawk	Belted Kingfisher	American Robin
Bald Eagle*		

From the National Wildlife Health Center, U.S. Geological Survey, Madison WI, October 1999.

* Indicates the bird was in captivity.

Source: CCWHC website: wildlife.usask.ca/bookhtml/arbovirus/arbown.htm#surv (May 23/01)

Figure 2. Types of Ontario Dead Birds Sighted/Tested in 2001 Season as of June 5th, 2001

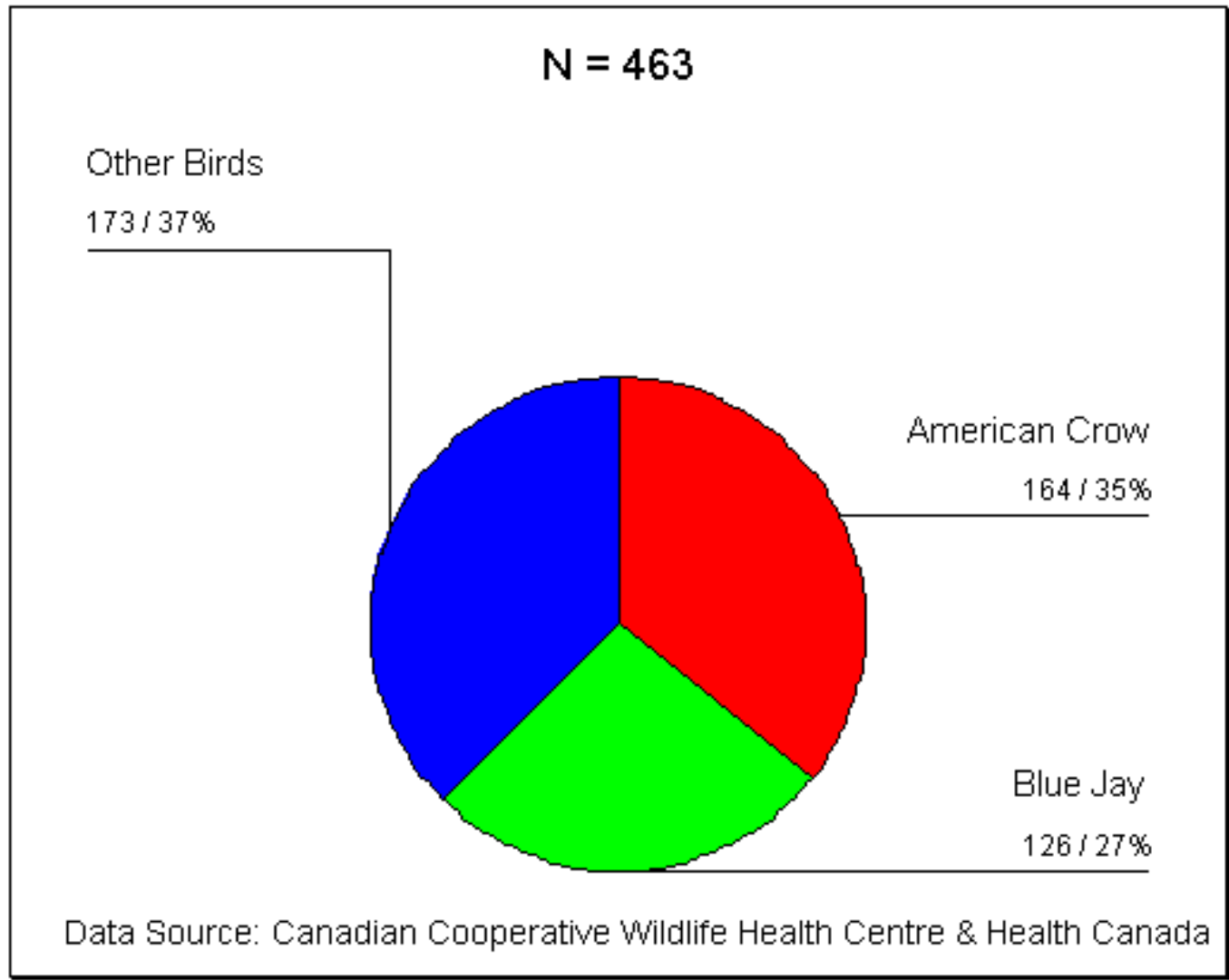
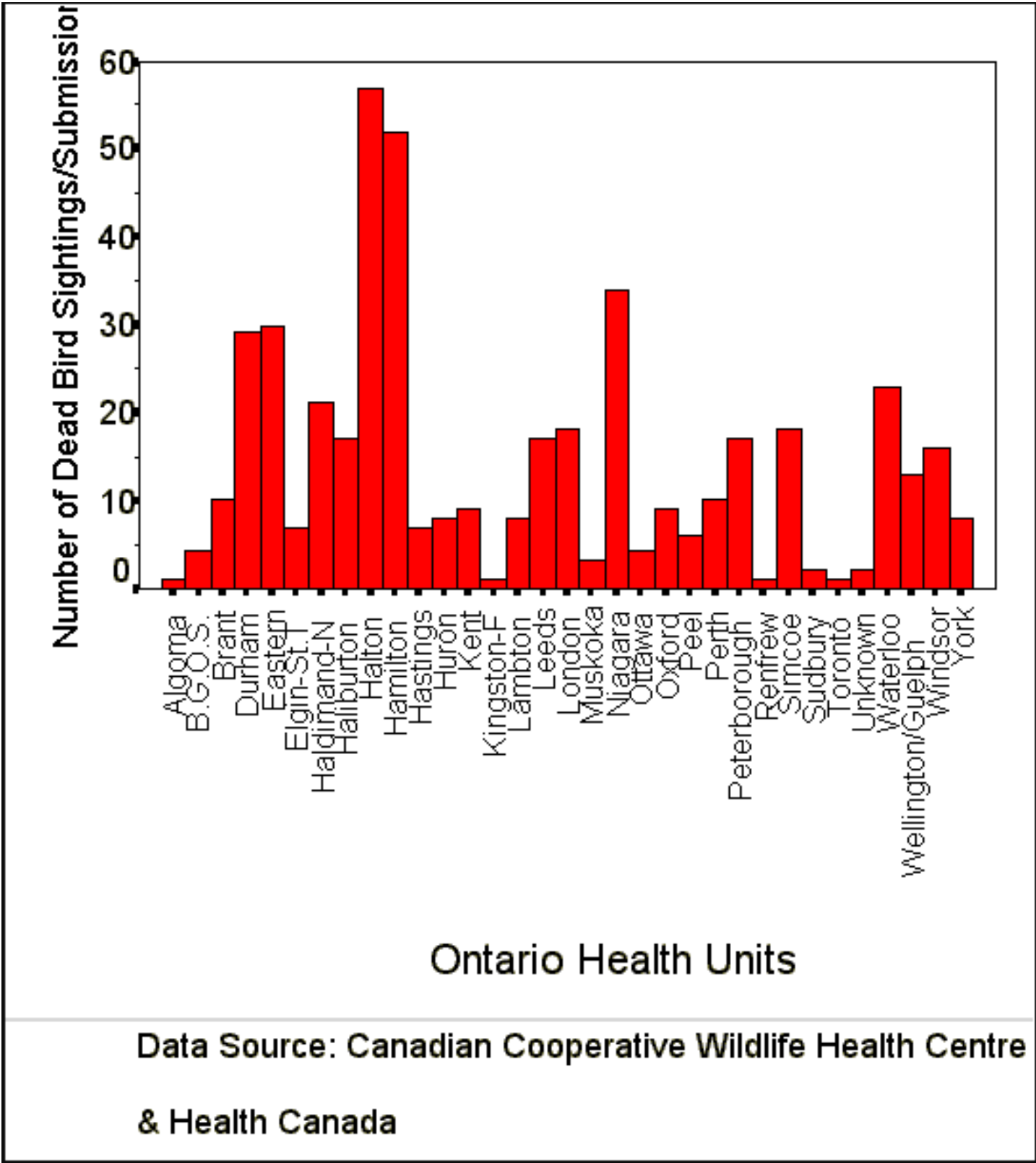


Figure 3. Number of Dead Bird Sightings in/Submissions by Ontario Health Units as of June 5, 2001(n=463)

Note** These are health unit submissions to the lab in Guelph, not to the lab in Winnipeg.



Other News

Worldwide Geographic Distribution

According to the CDC, West Nile Virus has been described worldwide in Africa, Europe, the Middle East, west and central Asia, Oceania (subtype Kunjin), and most recently, North America.

Algeria 1994	Russia 1999
Romania 1996-97	United States 1999-2000
Czech Republic 1997	France 2000
Democratic Republic of the Congo 1998	

Health & Medical Breakthroughs

The US government has enlisted the help of Acambis, a small Cambridge-based British biotechnology firm, to help fight West Nile Virus by producing a vaccine suitable for use in both humans and animals. They are gearing up for human trials of their experimental vaccine, as they are currently in the final stages of animal testing. Although representatives from Acambis are hopeful, they indicate that the vaccine is still "3 or 4 years from reaching the market, even if it successfully complete[s] clinical trials." (Reuters)

The similarity between the Yellow fever and West Nile Viruses allowed Acambis to utilize the Yellow Fever vaccine, which has been touted as the safest anti-viral vaccine, as a backbone for the experimental WNV vaccine.

Since there is currently no cure for West Nile Virus, this is the closest scientists have come to battling the disease from a therapeutic standpoint.

North American Geographic Distribution

Although WNV has not been documented in Canada, American officials have documented the virus in 2000 in Connecticut, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, the District of Columbia, and North Carolina. To date there are 17 states with active WNV surveillance programs, with positive specimens already testing positive for West Nile Virus.

United States :

Human cases: During the year 2000, a total of 21 human cases tested positive for the West Nile Virus infection in the USA: 14 in New York State, 6 in New Jersey, and an additional 1 case in Connecticut. These cases included the 2 deaths attributed to the virus: one in the state of New York and one in the state of New Jersey.

As of June 4th 2001, there have been no reported human cases of West Nile Virus in the United States.

Birds :

Table 2. The number of dead birds that tested positive in the US as of June 1st, 2001.

State	# Crows	# other birds	Bird Collection Dates	
County			Earliest	Latest
Connecticut New Haven	1	0	04/05/2001	04/05/2001
Maryland Baltimore City	2	0	18/05/2001	25/05/2001
New Jersey Bergen Middlesex	1 10	0 0	30/04/2001 02/05/2001	30/04/2001 16/05/2001
New York Westcheste	1	0	10/05/2001	10/05/2001
TOTAL	15	0	30/04/2001	25/05/2001

Source: Reported to CDC Atlanta, USA via Arbo-NET as of Noon MST, 01 June 2001

Maps

Dead Birds Submitted for West Nile Virus Diagnosis by Health in Ontario as of June 4, 2001. (MS Word)

Birds Submitted for West Nile Virus Diagnosis by Health Region in Canada as of June 6, 2001. (MS Word)

On-line West Nile Virus Resources

Canada :

Canadian Cooperative Wildlife Health Centre
<http://wildlife.usask.ca/bookhtml/arbovirus/arborn.htm#surv> (June 4,2001)
 Canadian Food Inspection Agency <http://www.cfia-acia.agr.ca/english/ppc/science/surv/wnvsure.shtml> (June 4, 2001)
 Health Canada <http://www.hc-sc.gc.ca/hpb/lcdc/bid/wnv/index.html#top> (June 4,2001)
 New Brunswick Health and Wellness <http://www.gnb.ca/0053/en/issues/wnvirus.htm> (June 4, 2001)
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 Sopel, J. West Nile fever hits France. BBC News Report, Wed, 11 Oct 2000, 13:21 GMT 14:21 UK [edited]
http://news.bbc.co.uk/1/hi/english/world/europe/newsid_967000/967048.stm

U.S.A. :

Connecticut Department of Environmental Protection
<http://dep.state.ct.us/mosquito/index.asp> (June 4,2001)
 District of Columbia Department of Health
<http://www.dchealth.com/> (June 4,2001)
 New York City Department of Health, West Nile Virus Information
<http://www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html> (June 4,2001)
 Vermont Department of Health
<http://www.state.vt.us/health/wnile.htm> (June 4,2001)
 Cornell Environmental Risk Assessment Program : West Nile Virus
<http://www.cfe.cornell.edu/risk/WNVmainpage.html> (May 25, 2001)

Acknowledgements

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West Nile Virus Bulletin

Disease Control Service
Public Health Branch

Volume 1 / Issue 9 October 27, 2000



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Summary of Ontario surveillance activities

Sentinel Chicken surveillance	All sites negative
Active Human surveillance	No confirmed cases
Mosquito counts	<i>Culex</i> species present - currently < 33% of female population at all sites as of October 13
Dead Bird surveillance	A total of 1531 specimens collected - equivocal results on laboratory testing on 1 possible positive dead crow collected from Windsor on August 10, 2000

Summary of surveillance activities in other jurisdictions to date

Other Canada

There have been no positive findings in mosquitoes, birds, sentinel chickens or humans in other Canadian jurisdictions.

United States

Human cases : On October 17, the state of Connecticut announced its first human West Nile Virus (WNV) case. After experiencing only several days of headache, a female from the county of Norwalk has been diagnosed as positive for the virus. She is the 18th person to become infected with WNV in the United States this season. Fourteen of the cases are residents of New York State (10 from Staten Island, 1 from Queens, 2 from Brooklyn and 1 dual resident of Brooklyn and Cliffside Park, New Jersey). The remaining 3 cases belong to the state of New Jersey (1 case in each of Little Falls, Bayonne and New Jersey). Of the 18 cases, 10 are aged 61 and over, and 7 are between the ages of 37 to 54. With the WNV season coming to an end, only one death has occurred: an 82-year-old male from Little Falls, New Jersey. Thus far, all but the 2 Brooklyn cases have recovered or are at home recovering.

Birds and mosquitoes : As of the 20th of October, a total of 1,108 dead birds have been identified as positive for WNV in all but 1 county in the state of New York. All New York counties lying adjacent to Ontario have found positive dead birds this season: Cayuga (11), Chautauqua (15), Clinton (14), Erie (23), Franklin (3), Jefferson (8), Monroe (11), Niagara (5), Orleans (3), Oswego (11), St. Lawrence (6) and Wayne (1). In addition to dead birds, 2 sentinel chickens (1 each from Westchester County and Staten Island, NYC) and 8 live wild birds (5 in Brooklyn, NYC; 1 in Bronx, NYC; 2 in Queens, NYC) were reported to be infected with the virus. Another 12 mosquito pools, bringing the season total to 329, were also reported as positive. In New Jersey, 18 counties have tested 1,104 bird carcasses as WNV positive by October 19. This count included 1,101 crows, a blue jay, a great horned owl and a cockatiel. Another 3 sentinel chickens have also seroconverted this year, bringing the total to 4 this season (1 each from the counties of Essex, Middlesex, Morris and Sussex). Other positive findings for

this state include 3 live wild birds (an American Kestrel from Cape May City, a blue jay from Middlesex County and a Cooper's Hawk from Union County) and 52 mosquito pools in various counties (Bergen, 22; Essex, 2; Hunterdon, 1; Middlesex, 3; Monmouth, 3; Passaic, 11; Sussex, 6; Union 1; Warren, 2). Meanwhile, the state of Connecticut has identified the carcasses of 927 crows, 2 blue jays, a dove, a finch and a cowbird as infected with WNV. This is in addition to the 14 positive mosquito pools trapped and identified in this state. With the risk of WNV infection diminishing, another 29 dead birds were identified as WNV positive in Rhode Island. This brings the total to 63 WNV positive dead birds found in 4 counties in this state (Kent, 8; Newport, 6; Providence, 1; Washington, 48). As of October 6, positive findings from Massachusetts include 344 dead birds from 81 cities/towns and 4 mosquito pools from the cities of Brookline (3) and Boston (1). New Hampshire, on the other hand, has had no new positive findings since the last bulletin. Currently, there are still only 5 dead birds confirmed in this state (3 from Hillsborough County and 2 from Rockingham County). Another 22 dead crows have been identified as WNV positive in the state of Maryland. This brings the total to 43 dead crows this year in this state (26 in Baltimore City, 8 in Baltimore County, 3 in Howard County, 3 in Montgomery County and one each in the counties of Anne Arundel, Charles and Frederick). Conversely, the state of Pennsylvania has reported 29 dead birds from 9 counties and 24 mosquito pools from 10 counties as positive for the virus. Though the risk for WNV infection is decreasing, 3 new states have reported positive findings since the last bulletin. A District of Columbia's press release dated October 5 reported that 2 bird carcasses found on September 30th in Washington have tested positive for the West Nile Virus. A dead crow from Virginia (Prince Edward County) has also tested positive for the virus. This is the first WNV positive finding in this state. Finally, another bird carcass was identified as infected with WNV in Putney City, Vermont. As with Virginia, this is also the first WNV finding in this state.

Other : In addition to the 32 mammals reported as WNV positive in the last bulletin, New York has identified a horse from Suffolk County as infected with the virus. Past positive findings were 14 bats (Albany, 9; Ontario, 2; one each in Columbia, Cortland and Saratoga), 2 cats (Albany), 1 chipmunk (Rensselaer), 7 horses (2 in Staten Island, NYC; 1 in Bronx, NYC; 4 in Orange County), 3 domestic rabbits (2 in Albany and 1 in Staten Island, NYC), 2 raccoons (1 in Albany and 1 in Manhattan, NYC) and 3 squirrels (all 3 in NYC: Bronx, Brooklyn and Staten Island). Another 4 horses were also confirmed as WNV positive in New Jersey. This brings the total to 15 horses WNV positive in 7 counties in this state this year (Atlantic, 2; Burlington, 2; Cape May, 1; Hunterdon, 1; Monmouth, 4; Ocean, 2; Sussex, 3). In addition to the 4 horses reported by Connecticut as WNV positive (1 each from the counties of Danbury, Hebron, Middlefield and Milford), this state has identified 2 more horses from the counties of Cheshire and Newtown as WNV cases. Finally, no other mammals have been infected with WNV in the states of Massachusetts, Pennsylvania and Rhode Island. Currently, each of these states still has only one horse positive for WNV.

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West Nile Virus Surveillance in Ontario

This issue is the ninth and final issue of the Ontario West Nile Virus (WNV) Bulletin for this year. Its purpose is to provide a summation of the results of the various surveillance activities in Ontario and an update on other findings elsewhere in Canada and in the United States.

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Sentinel Chicken Surveillance

On October 13, 2000, the sentinel chicken component of the West Nile Virus Surveillance Program closed for the season.

The sentinel chicken surveillance sites located in the regions of Brockville (BR), Picton (PI), Guelph (GU), Niagara (NI), Long Point (LP) and

Point Pelee (PP) were visited. In all 18 sites, blood samples were collected from 178, 179 and 178 chickens for the weeks ending September 29, October 6 and October 13 respectively. By the end of the surveillance season, none of the chickens had become infected with West Nile Virus.

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Human Encephalitis Surveillance

Up to the 20th of October, a total of 174 individuals, ranging from 2 months to 92 years of age, were deemed suspect cases. Of these, 117 were reported by 37 sentinel hospitals through active surveillance (78 were reported by sentinel hospitals while 39 were initially identified by the public health laboratory). Community physicians and non-sentinel hospitals reported another 54 suspect cases through enhanced passive surveillance. Clinical syndromes include 14 suspect cases with meningitis, 24 with encephalitis and another 6 with meningoencephalitis. Acute serum was taken from 155 people. Of these, 47 also had a convalescent serum drawn. In addition, 94 of the suspect cases also provided cerebrospinal fluid (CSF) for testing (15 with CSF only, 54 also with an acute serum and 25 with both acute and convalescent sera and CSF). At the end of the surveillance season, no human cases of West Nile Virus infection has been confirmed.

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Mosquito Surveillance

The mosquito component of the surveillance for this season was discontinued on the 13th of October 2000.

For the weeks ending September 29 (week 18), October 6 (week 19) and October 13 (week 20), mosquitoes from the mosquito surveillance sites were collected, enumerated and speciated. The 3 additional Niagara Region mosquito trapping and collection sites mentioned in the last bulletin were not operating as of the week ending the 29th of September. These 3 sites were only included for analysis for weeks 16 and 17 (weeks ending the 15th and 22nd of September) of observation. In addition, data for the week ending September 1 (week 14) has been updated. For this issue of the bulletin, the results of the enumeration and speciation up until October 13 were included. Finally, as with the 2 previous issues of the bulletin, only **live** mosquito data were examined for the week ending the 18th of August 2000.

For each week of observation, analysis of variance was used to compare mean mosquito counts at each of the sites in the surveillance regions. At the end of the surveillance season, one site in each of Brockville (BR-1), Long Point (LP-3) and Picton (PI-3) had a significantly higher mean mosquito count compared to other sites within their respective regions ($p=0.01$, 0.02 and 0.01 respectively). In addition, lower mean mosquito counts prevailed in site 3 in Point Pelee compared to the other sites in this region ([Figure 1](#)). The result for PP-3 was statistically significant ($p=0.01$). Although the mean mosquito counts in all 6 regions increased from week 18 to week 19, with the exception of Guelph, the regions of Brockville, Long Point, Niagara, Picton and Point Pelee were showing a decline in the mean mosquito counts after 20 weeks of observation. However, the result within the region over the surveillance season was not statistically significant for each of the regions.

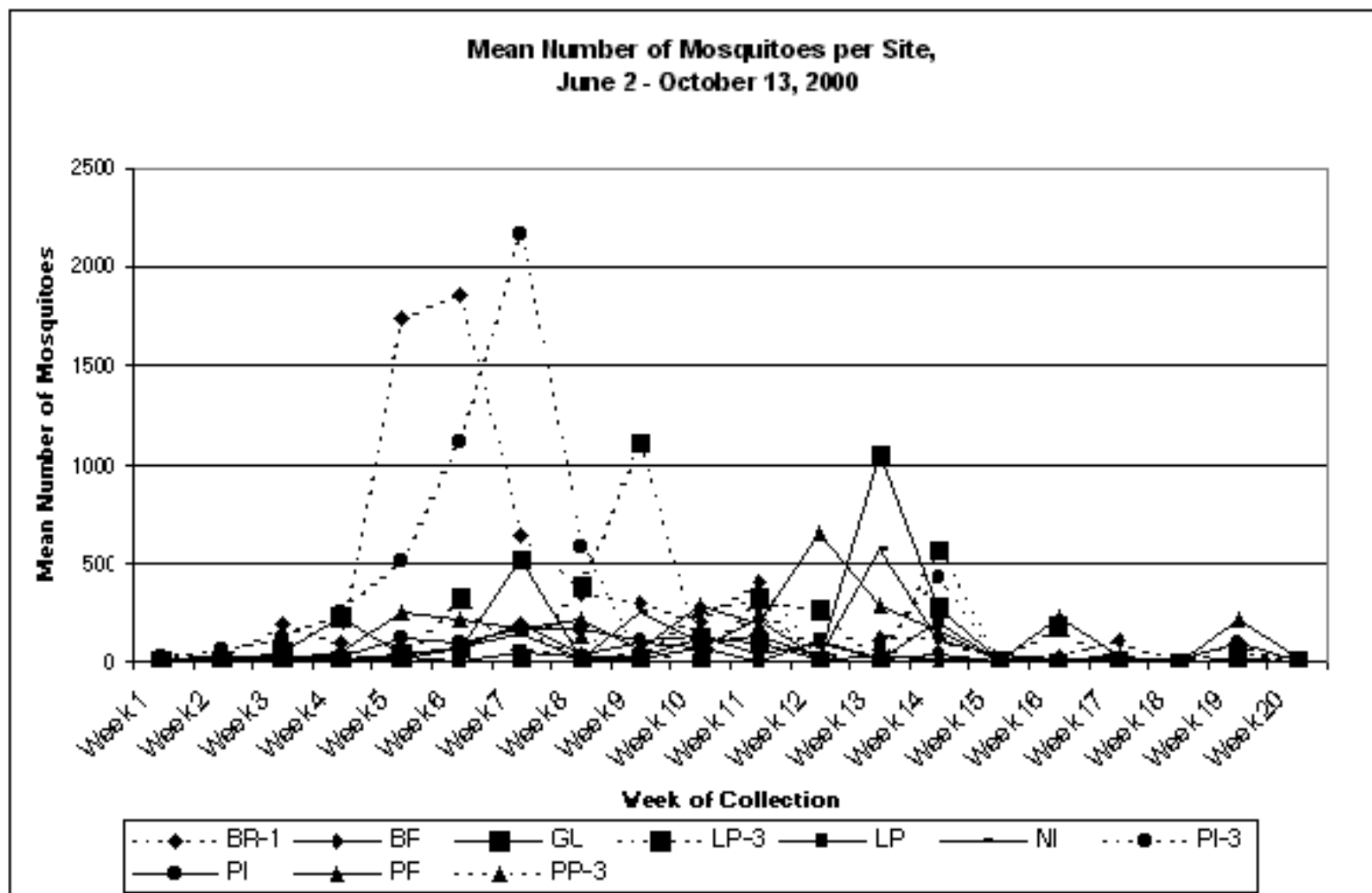
After week 18, the number of female mosquitoes collected in the 6 regions increased. However, by the end of 20 weeks, these numbers have started to show a decline. The only exception is the region of Guelph, where the number continued to increase. None of these trends were statistically significant. In addition, for the entire surveillance season, it was observed that Brockville had the greatest mean number of female mosquitoes relative to the other regions ([Table 1](#)). However, in considering the proportion of female mosquitoes among the total number of mosquitoes collected, Picton had the largest mean proportion at 93.4% ([Table 1](#)). With respect to the proportion of female mosquitoes, the only regions that had statistically significant results were Long Point and Picton ($p=0.02$ and $p=0.001$ respectively). At the end of 20 weeks, Long Point was exhibiting a declining trend while Picton had remained constant in the last 5 weeks the season. In terms of species, the majority of mosquitoes remain *Aedes* ([Table 1](#)). However, the mean proportion of *Culex pipiens* mosquitoes in Guelph has increased since the last bulletin (from 16.8% to 24.3%). This is because the female mosquitoes from this region have been exclusively *Culex pipiens* in the last 2 weeks of observation. Finally, only Brockville showed a statistically significant result within the region upon observation of female mosquitoes by species over the observation period ($p=0.001$). After showing an increase in the proportion of female *Aedes* mosquitoes after 18 weeks, this region was showing a decline at the end of 20 weeks.

Table 1
(Note: Only live mosquito data were used for the week ending August 18, 2000)

20 Week Summary

SITE	Mean Number of Female Mosquitoes Mean (range)	Mean % of Mosquitoes Female	Mean % of Female Mosquitoes Culex pipiens	% of Female Mosquitoes Aedes
<i>Brockville</i>	401.7 (0-1985)	90.8	17.0	64.0
<i>Guelph</i>	378.8 (0-3160)	87.3	24.3	67.1
<i>Long Point</i>	218.4 (1-1133)	91.6	32.7	59.3
<i>Niagara</i>	291.7 (8-1731)	92.8	30.9	62.2
<i>Picton</i>	394.7 (1-1902)	93.4	26.1	67.1
<i>Point Pelee</i>	337.6 (0-1301)	86.0	24.1	68.5

Figure 1
(Note: Only live mosquito data were used for the week ending August 18, 2000)



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Dead Bird Surveillance

The Canadian Cooperative Wildlife Health Centre (CCWHC) Ontario Region Laboratory in Guelph has ceased accepting dead birds submitted specifically for West Nile Virus surveillance as of October 6, 2000.

The CCWHC received 41 carcasses for the week ending September 29, week 18, 23 dead birds in week 19 and 19 bird carcasses in week 20. A total of 1531 dead birds were submitted to the CCWHC this surveillance season. During the 20 weeks of observation, the mean number of dead birds submitted was 63.79 per week (range of 2 to 462). None of the 1531 dead birds were found to be positive for the West Nile Virus.

Of the total number of carcasses received by the CCWHC, 1255 (82%) underwent an initial autopsy, of which 643 (51%) did not require further examination and 612 required further examination. A total of 262 (41%) out of the 643 had a firm alternative diagnosis, while the remaining 381 did not require further diagnosis due to other reasons. However, of those that required further examination after initial autopsy, 69 had a firm alternative diagnosis after histology testing. Another 30% had no apparent West Nile lesions and 112 were considered as suspect cases of WNV infection. Of the 112, all but 61, with results still pending, have been diagnosed as negative for the virus.

There have been no positive reports of WNV infected dead birds this surveillance season. After further testing by two United States reference laboratories, the possible positive dead crow collected on August 10 from the city of Windsor was found to have equivocal evidence of WNV. (See the previous two issues of the bulletin for more information.)

Figure 2

Dead Bird Submissions, Ontario; May 1 - October 13, 2000

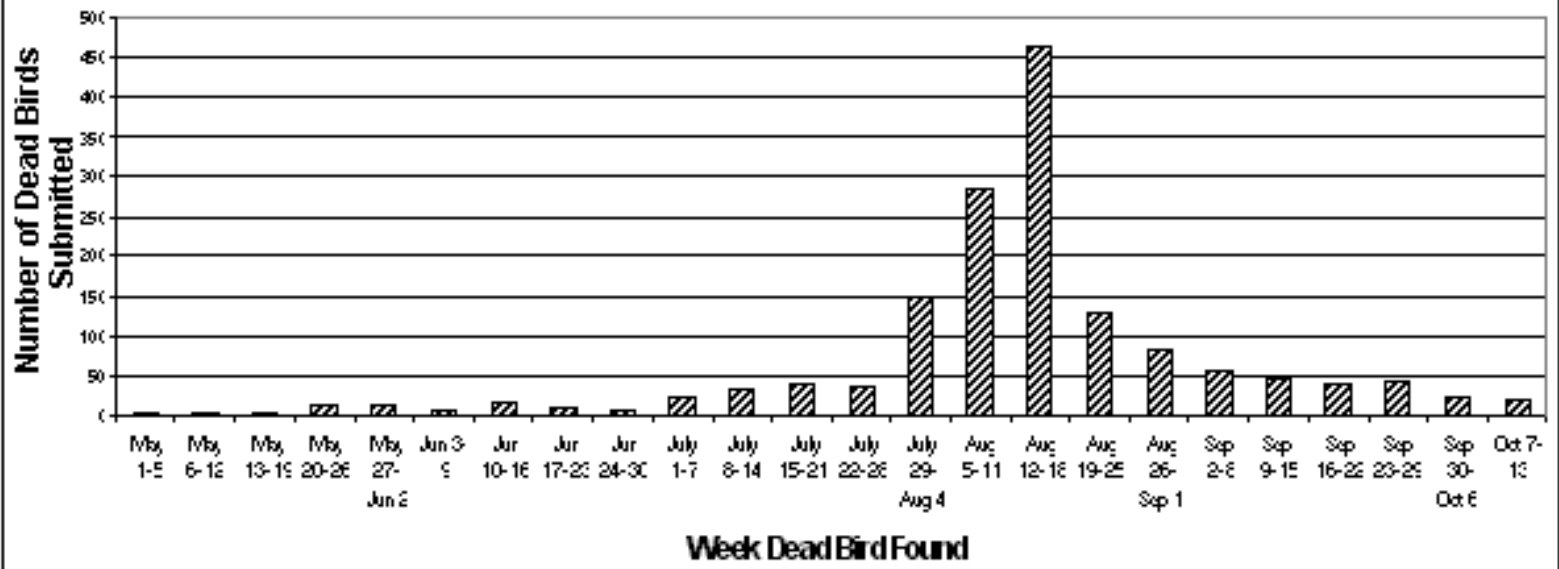


Figure 3

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Other News

The provinces of Manitoba, New Brunswick, Newfoundland and Saskatchewan have stopped dead bird surveillance. Quebec and Nova Scotia plan to continue until the end of October. If suspicious dead birds are identified after surveillance cessation, the CCWHC and the Canadian Food Inspection Agency (CFIA) will do testing. Furthermore, sentinel chicken surveillance has also been discontinued in Manitoba, New Brunswick, Nova Scotia, Quebec and Saskatchewan. With the exception of Quebec, these provinces have also ceased mosquito surveillance. Quebec has decided to continue mosquito surveillance at selected sites until no mosquitoes are detected.

Conducted by the New York Health Department and the U.S. Centers for Disease Control and Prevention (CDC), the door-to-door West Nile Virus survey of households on Staten Island was completed on October 8, 2000. Samples from a total of 877 voluntary participants in 634 households in randomly selected neighborhoods on Staten Island were collected for this survey. The survey participants are scheduled to receive their individual WNV test results within the next three months. The Health Department and CDC will conduct further analysis of survey data, with the results being made available to the public once the analysis is complete.

The Camarague region in the south of France is suffering from an outbreak of West Nile fever. As of October 11, the disease has struck only horses. However, so many horses have died and have been infected that the public health authorities have been forced to introduce emergency measures. The herds of free-ranging horses are being rounded up in order to contain the spread of the disease and also to assist in the rehabilitation of recovered animals.

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The contribution of the following agencies and individuals in the publication of this year's issues of the West Nile Virus Bulletin is greatly appreciated:

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Additional West Nile Virus Resources

Sopel, J. West Nile fever hits France. BBC News Report, Wed, 11 Oct 2000, 13:21 GMT 14:21 UK (edited)

http://news.bbc.co.uk/hi/english/world/europe/newsid_967000/967048.stm

Health Canada

http://hwcweb.hwc.ca/hpb/lcdc/osh/wnv2000_e.html

Connecticut Department of Environmental Protection

<http://dep.state.ct.us/mosquito/index.asp>

District of Columbia Department of Health

<http://www.dchealth.com/>

New York City Department of Health, West Nile Virus Information

<http://www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html>

Vermont Department of Health

<http://www.state.vt.us/health/index.htm>

Virginia Department of Health

<http://www.vdh.state.va.us/>

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Summary of Ontario surveillance activities

Sentinel Chicken surveillance	All sites negative
Active Human surveillance	No confirmed cases
Mosquito counts	Culex species present - currently < 35% of female population at all sites
Dead Bird surveillance	A total of 1421 specimens collected - equivocal results on reference laboratory testing on 1 possible positive dead crow from Windsor collected on August 10th

Summary of surveillance activities in other jurisdictions to date

Other Canada

No other Canadian jurisdiction has reported any positive findings in mosquitoes, birds, sentinel chickens or humans.

United States

Human cases : On a press release dated October 4, the New York City Health Commissioner Neil L. Cohen announced that a 37 year-old Staten Island man has tested positive for West Nile Virus (WNV). After being hospitalized with symptoms of encephalitis, this individual has since been released and is at home recovering. This is the youngest case reported thus far this year. As of the 6th of October, 14 people have been diagnosed with West Nile virus in New York City, ten of whom are residents of Staten Island. Three others are residents of Brooklyn (1 of which is also a dual resident of New Jersey) and one is a Queens resident. There are also three cases in New Jersey (1 each from Little Falls, Bayonne and Jersey City). Overall, 10 of the cases are aged 61 and over, and 7 are between the ages of 37 to 54. In addition, a single mortality has occurred to date this season (an 82-year-old male from Little Falls, New Jersey). Of all other persons diagnosed with West Nile Virus, only two Brooklyn residents remain in hospital, one of whom is an 87 year-old woman in a coma.

Birds and mosquitoes : In addition to the seven live wild birds infected, a total of 1,038 bird carcasses have tested positive in 57 of 59 counties in the state of New York as of October 6, 2000. A number of these dead birds were found in 12 counties located immediately south of Ontario: Cayuga (10), Chautauqua (15), Clinton (14), Erie (22), Franklin (3), Jefferson (8), Monroe (11), Niagara (5), Orleans (3), Oswego (11), St. Lawrence (6) and Wayne (1). The dead bird found in Wayne County is the first positive WNV specimen in this area. In addition, another 29 WNV positive mosquito pools were isolated since the last bulletin, for a total of 317 positive pools. In addition, another sentinel chicken from Queens has seroconverted, bringing the total of sentinel chickens infected with the virus to two for New York this year. Seventeen counties in New Jersey have reported 1,015 dead birds (1,014 crows and a cockatiel) as positive for the

virus. Another 25 positive mosquito pools have been reported since the 28th of September. As of the 6th of October, there are 37 WNV positive mosquito pools found in various counties in New Jersey (Bergen, 20; Essex, 1; Middlesex, 3; Monmouth, 3; Passaic, 8; and Sussex, 2). The first positive chicken from the sentinel program has also been found with the virus in New Jersey this year in Middlesex County. Connecticut has identified a cumulative total of 568 WNV positive dead birds from 72 different towns in 7 different counties. Furthermore, 7 more mosquito pools (for a total of 13) have been collected and found positive in this state. Another 9 dead birds have also been reported as infected with WNV by the state of Rhode Island. This brings the total for this state to 34 positive dead birds as of October 3, 2000 (Kent County, 5; Newport County, 3; Providence County, 1; and Washington County, 25). Additionally, positive findings from Massachusetts up until September 22 include 209 dead birds from 47 different towns and 4 mosquito pools from the towns of Brookline (3) and Boston (1). The state of New Hampshire has identified the virus in 4 new birds from the counties of Hillsborough (3) and Rockingham (2). There are now 5 positive bird carcasses confirmed in this state. Two new states have isolated the virus within their state borders: Maryland and Pennsylvania. Twenty-one WNV infected dead crows (14 in Baltimore City, 3 in Baltimore County, 2 in Montgomery County and one each in Howard County and Anne Arundel County) were confirmed in Maryland. Pennsylvanian crow carcasses from Bucks County (2), Chester County (1) and Delaware County (1) were positive for the virus.

Other : A total of 32 mammals have been found to be infected with the virus in New York as of October 6, 2000: 14 bats (Albany, 9; Ontario, 2; one each in Columbia, Cortland and Saratoga), 2 cats (Albany), 1 chipmunk (Rensselaer), 7 horses (2 in Staten Island, NYC; 1 in Bronx, NYC; 4 in Orange County), 3 domestic rabbits (2 in Albany and 1 in Staten Island, NYC), 2 raccoons (1 in Albany and 1 in Manhattan, NYC) and 3 squirrels (all 3 in NYC: Bronx, Brooklyn and Staten Island). New Jersey has also identified 11 horses as positive for WNV for the year in six cities (Atlantic, 2; Burlington, 2; Cape May, 1; Monmouth, 2; Ocean, 2; and Sussex, 2). A Connecticut horse from Middlefield County is improving after having been diagnosed as infected with the virus. This is the fourth horse this year from the state of Connecticut isolated with the virus. Finally, Massachusetts, Pennsylvania and Rhode Island each reported one horse positive for WNV.

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West Nile Virus Surveillance in Ontario

This eighth issue of the Ontario West Nile Virus (WNV) Bulletin provides a summary of results of the various surveillance activities in Ontario. It also includes an update on other findings elsewhere in Canada and in the United States.

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Sentinel Chicken Surveillance

For the weeks ending September 15th and September 22nd, the 18 sentinel chicken surveillance sites in Brockville (BR), Picton (PI), Guelph (GU), Niagara (NI), Long Point (LP) and Point Pelee (PP) were visited. Blood samples were collected from 177 chickens in these sites for each of the 2 weeks of sampling. As of September 22, no chickens have tested positive for WNV.

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Human Encephalitis Surveillance

As of September 29, a cumulative total of 137 persons, ranging in age from 2 months to 84 years old, were reported as suspect cases through the human encephalitis component of the WNV surveillance program. None has tested positive for WNV. Of the 137 individuals, 87 (64%) were reported by 34 of the sentinel hospitals, and 26 of these were first identified by the public health laboratory. Community physicians and non-

sentinel hospitals reported 46 (34%) suspect cases through (enhanced) passive surveillance. Thirteen of the suspect cases had meningitis, 19 had encephalitis and 5 had meningoencephalitis as clinical syndromes. One hundred twenty-four individuals had an acute serum taken, and of these, 32 (25%) also had convalescent serum drawn. Cerebrospinal fluid (CSF) was taken from 76 individuals (9 with CSF only, 50 with an acute serum also taken and 17 with both sera drawn).



Mosquito Surveillance

For the weeks ending the 15th and 22nd of September, mosquitoes were collected from each of the 21 surveillance sites. It should be noted that 3 additional mosquito trapping and collection sites were set up in Niagara Region due to the proximity to positive crows in Lewiston, New York. Since the week ending September 15, analysis of data for Niagara was done for 6 surveillance sites. The results of the enumeration and speciation are available to the week ending September 22nd. As per last issue of the bulletin, only **live** mosquito data were examined for the week ending August 18, 2000.

For the 17 weeks of observation, mean mosquito counts at each of the 21 sites in the 6 regions were compared using analysis of variance. Since data for only 2 weeks were available for the 3 new Niagara sites, this region was separated into 2 groups for analysis: 1 group included NI-1, NI-2 and NI-3; the other group consisted of the new sites (NI-4, NI-5, NI-6). As with the last issue of the bulletin, one site in each of the regions of Brockville (BR-1), Long Point (LP-3) and Picton (PI-3) had a significantly higher mean mosquito count than the other sites in their respective regions ($p=0.01$, 0.02 and 0.01 respectively) (Figure 1). PP-3 continued to have a significantly lower mean count of total mosquitoes in comparison to the other sites within the region of Point Pelee. At the end of 17 weeks, the mean mosquito counts for the regions of Brockville, Guelph and Picton were once again on the increase. In contrast, Long Point and Point Pelee exhibited an increase at the end of week 16. However, both regions started to decline afterwards. Niagara continued to show a decreasing trend. Overall, the mean total mosquito counts in each of the 6 regions did not vary statistically significantly within the region over the 17 weeks of observation.

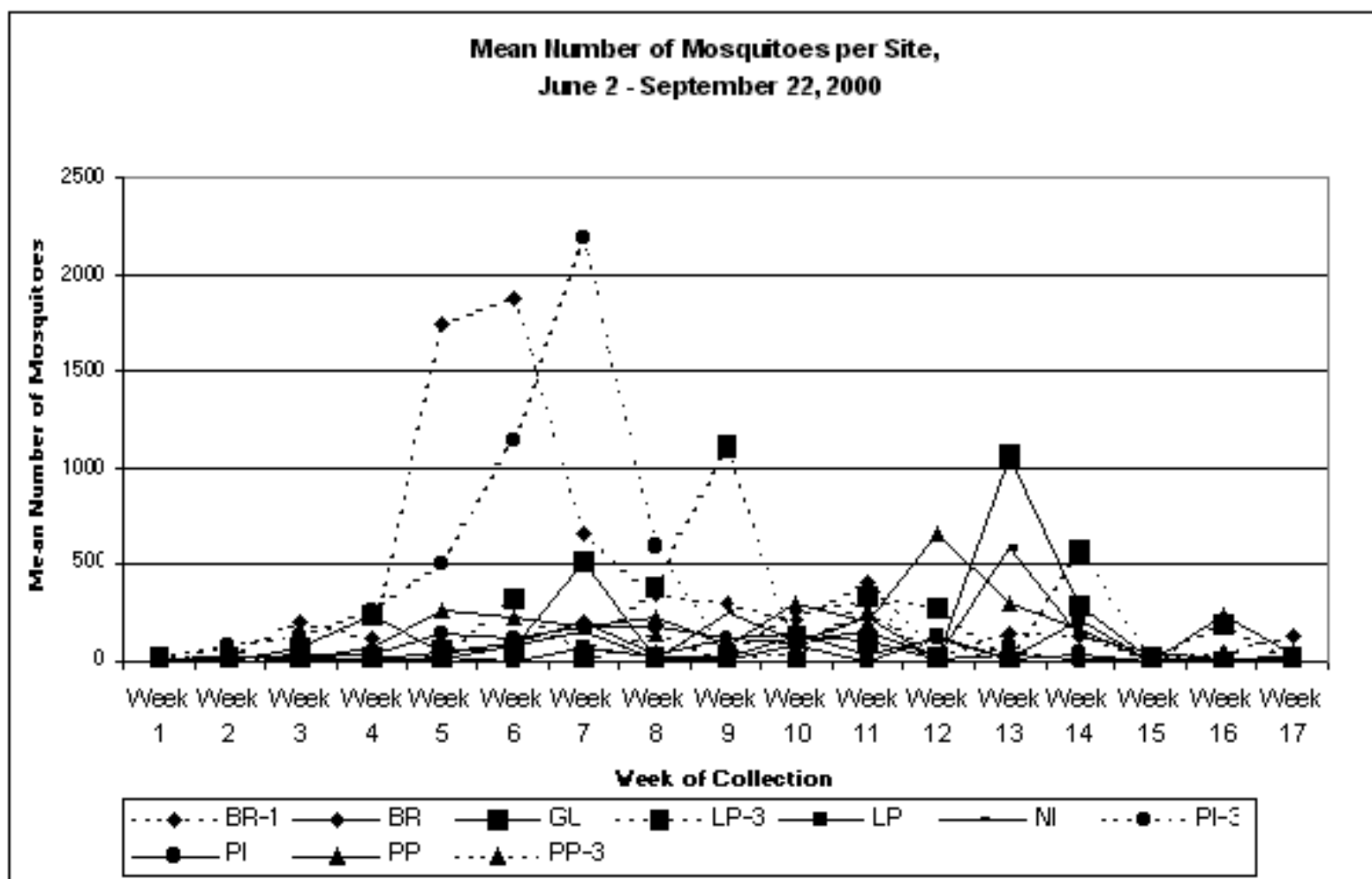
The number of female mosquitoes collected in Brockville, Guelph and Picton were on the increase as of September 22. Conversely, the number of female mosquitoes in the remaining surveillance regions of Long Point, Niagara and Point Pelee increased after week 16 and then decreased the week after. However, none of the trends in female counts were statistically significant. In looking at the proportion of female mosquitoes in these regions, Brockville, Long Point and Picton had statistically significant results ($p=0.03$, 0.02 and 0.01 respectively). From week 15 to week 16, both Long Point and Picton have increased in the proportion of female mosquitoes collected. However, Picton remained constant at the end of week 17 while Long Point continued to increase. Although Brockville has the highest mean percentage of female mosquitoes (Table 1), it began to show a decline in the proportion of female mosquitoes at the end of 17 weeks of observation. This is in contrast to what was observed in the last issue of the bulletin (after week 15), where Brockville was starting to increase in proportion. Additionally, the decreasing trend observed in the proportion of female *Culex pipiens* mosquitoes for the region of Point Pelee continued until the end of week 16. By the week ending September 22, this statistic showed an increase for this region. Along with Point Pelee, Niagara and Picton also showed an increase after 17 weeks of observation. Conversely, Brockville, Guelph and Long Point were on the decline. However, only Point Pelee had a statistically significant result ($p=0.03$). Although the regions of Brockville, Niagara, Picton and Point Pelee started to decrease in the proportion of female *Aedes* mosquitoes collected, only Brockville and Point Pelee had statistically significant results ($p=0.02$ and 0.01 respectively). By the end of week 17, the majority of female mosquitoes present remain to be of the species *Aedes*.

Table 1
(Note: Only live mosquito data were used for the week ending August 18, 2000)

17 Week Summary				
SITE	Mean Number of Female Mosquitoes Mean (range)	Mean % of Mosquitoes Female	Mean % of Female Mosquitoes <i>Culex pipiens</i>	% of Female Mosquitoes <i>Aedes</i>
Brockville	466.3 (22-1985)	95.9	19.5	71.7
Guelph	445.4 (6-3160)	92.4	16.8	79.0

Long Point	251.5 (1-1133)	90.6	34.5	59.5
Niagara	261.5 (8-1731)	91.6	33.4	58.3
Picton	455.5 (15-1902)	92.2	30.4	61.6
Point Pelee	355.6 (5-1301)	91.9	28.5	68.8

Figure 1
(Note: Only live mosquito data were used for the week ending August 18, 2000)



Dead Bird Surveillance

As of the 22nd of September, a cumulative season total of 1421 bird carcasses have been submitted to the Canadian Cooperative Wildlife

Health Centre (CCWHC). For week 16 (ending September 15), 48 dead birds were submitted. Another 19 carcasses were submitted to the CCWHC the following week. As seen from Figure 2, the decreasing trend in the submission of dead birds continues. Of the 1421 dead birds, none have been found to be positive for WNV, with the exception of a single "equivocal" dead crow from Windsor (see below).

A total of 996 (70%) carcasses underwent an initial autopsy. Of these, 474 (48%) did not require further examination and 243 carcasses had a firm alternative diagnosis. The remaining 231 (49%) did not require further diagnosis due to other reasons. Five hundred twenty-two of the 1421 carcasses submitted did require further examination after the initial autopsy. From histology results, it was revealed that 56 of the 522 had a firm alternative diagnosis. No apparent West Nile lesions were observed in 153 dead birds. By the 22nd of September, 65 specimens have been considered as suspect cases for WNV infection after histology. Of these, 39 have results pending; the rest have been diagnosed as negative for the virus. Results for the remaining 248 carcasses that underwent further examination are still pending.

In the last bulletin, we reported a dead crow collected on August 10 in the city of Windsor, which tested positive for WNV PCR by the Health Canada laboratory in Winnipeg and "suspicious" equivocal immunohistochemistry findings by the Canadian Food Inspection Agency. Confirmatory testing by two United States reference laboratories has been done. Both laboratories found equivocal evidence of WNV. The only conclusion that can be made is that the infectivity status of the specimen cannot be determined. Due to poor quality of the specimen samples, the findings are ambiguous.

Figure 2

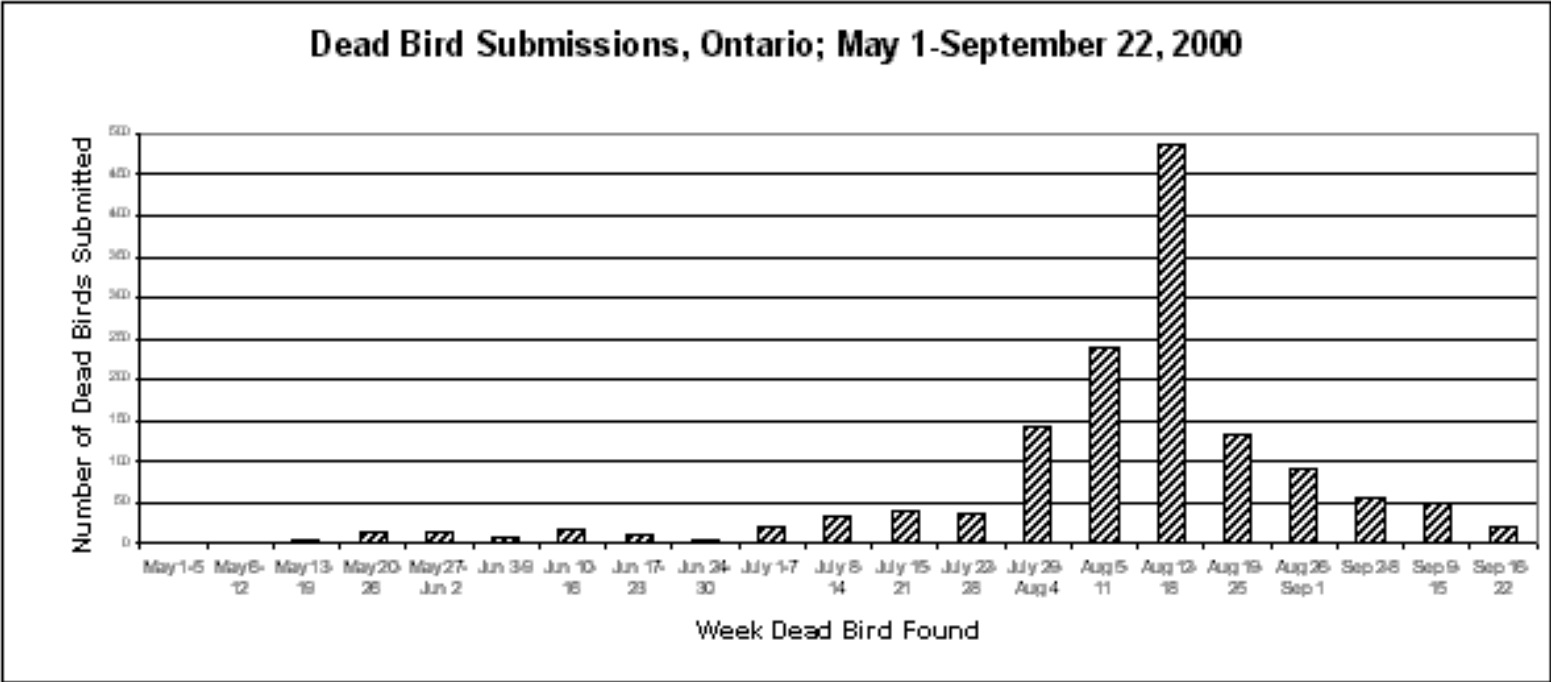
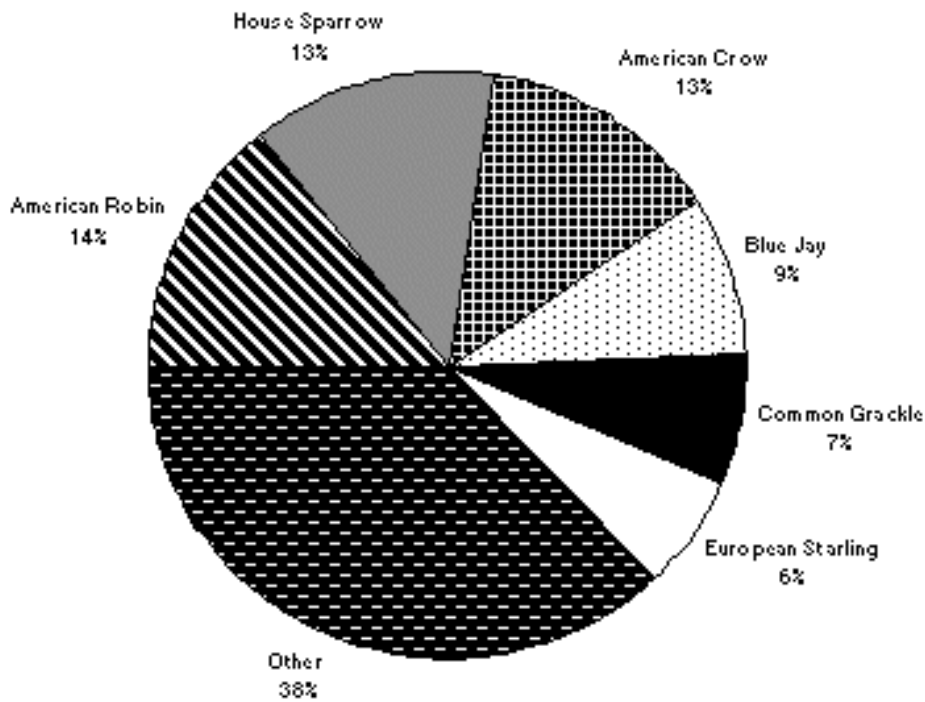


Figure 3

Proportion of Dead Birds by Type May 1 - September 22, 2000



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Other News

After consultation with the Ontario Ministry of Health and Long-Term Care, the Canadian Cooperative Wildlife Health Centre (CCWHC) Ontario Region Laboratory in Guelph, has ceased accepting dead birds submitted specifically for West Nile Virus surveillance as of the 6th of October. The only exception is submissions from the Niagara Region Health Unit. This exception has been made due to the continued activity in the U.S. counties adjacent to it. With the onset of frost in most parts of southern Ontario adjacent to WNV-endemic counties in New York, it is expected that mosquito numbers will remarkably decrease over the immediate future. Thus, the risk of WNV transmission among birds and mosquitoes and to people is also expected to diminish. The CCWHC will continue to examine wildlife of any type submitted for determination of cause of death.

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Additional West Nile Virus Resources

Health Canada

http://hwcweb.hwc.ca/hpb/lcdc/osh/wnv2000_e.html

Maryland Department of Health and Mental Hygiene, Epidemiology and Disease Control Program, West Nile Virus Information Page

<http://edcp.org/html/wn.html>

New York City Department of Health, West Nile Virus Information
<http://www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html>

Pennsylvania's West Nile Virus Surveillance Program
<http://www.westnile.state.pa.us/>

FOR MORE INFORMATION

Comments, questions and suggestions about surveillance results in this bulletin should be directed to :



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West Nile Virus Bulletin

Disease Control Service
Public Health Branch

Volume 1 / Issue 7 September 29, 2000



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Summary of Ontario surveillance activities

Sentinel Chicken surveillance	All sites negative
Active Human surveillance	No confirmed cases
Mosquito counts	Culex species present - currently < 35% of female population at all sites
Dead Bird surveillance	A total of 1296 specimens collected - 1 dead crow from Windsor collected August 10th "probable positive" for WNV; further confirmatory testing pending

Summary of surveillance activities in other jurisdictions to date

Other Canada

No positive findings in mosquitoes, birds, sentinel chickens or humans have been reported by any other Canadian jurisdiction.

United States

Human cases : AUp until September 28, 16 WNV human cases have been confirmed: 9 cases from Staten Island, New York; 3 cases from Brooklyn, New York (including 1 Florida resident staying in Brooklyn and 1 dual resident of Brooklyn, New York and Cliffside Park, New Jersey), 1 case in Queens; 3 cases from New Jersey (1 each from Little Falls, Bayonne and Jersey City). Ten cases were aged 61 and over and 6 were in people between the ages of 40 and 54. One case, an 82-year old male from Little Falls, New Jersey, died in mid-September. With the exception of 2 individuals from Brooklyn and the 1 person from Queens, all living cases are at home recovering.

Birds and mosquitoes : As of the 25th of September, 841 birds were reported as positive for WNV in 56 of 59 New York Counties. Of these 56 counties, 11 are located immediately south of Ontario (Counties of Cayuga, Chautauqua, Clinton, Erie, Franklin, Jefferson, Monroe, Niagara, Orleans, Oswego and St. Lawrence). Since the last issue of the bulletin, newly positive dead birds were found in the counties of Erie, Franklin, Jefferson (opposite Kingston, Ontario) and St. Lawrence (opposite Cornwall-Brockville, Ontario), and an additional 72 mosquito pools have tested positive for WNV. This brings the total positive mosquito pools in New York to 288 for this year. To date, 1 sentinel chicken and 7 live wild birds have also been identified as positive for the virus in the state of New York. New Jersey has found 838 WNV positive bird carcasses (837 crows, 1 cockatiel) within its state borders as of the 25th of September. In addition to dead birds, New Jersey has also identified 12 mosquito pools positive for the virus in various counties: Bergen (5), Essex (1), Middlesex (2), Monmouth (3) and Passaic (1). A total of 332 dead birds have been identified as positive for the virus in 7 different Connecticut counties. In addition to the 3 pools of bird-biting mosquitoes identified in July and August, 2 pools of WNV

positive human-biting mosquitoes were isolated in Stamford and in Meriden on September 19. This came after the first positive isolation of WNV in a single human biting mosquito collected from a Greenwich County trap on August 30. This mosquito pool contained a single *Culex pipiens* mosquito. The state of Connecticut plans to carry out ground-level spraying around a 2-mile radius where the 2 new human-biting mosquito pools were found. Scourge, which is a pesticide containing resmethrin, piperonyl butoxide and petroleum distillate, will be used for the spraying. As of the 25th of September, 11 dead crows and a dead blue jay have been recognized as positive for the virus in Rhode Island. The most recent dead birds, all crows, are from Coventry (2), North Kingstown (1), North Smithfield (1) and Westerly (4). As of the 14th of September, the state of Massachusetts has identified a total of 176 dead birds as infected with WNV. Additionally, another mosquito pool was confirmed as WNV positive in Brookline City, Norfolk County. The mosquito species *Aedes triseriatus*, which may bite humans, was isolated from this pool. To date, 4 mosquito pools have been isolated in Massachusetts this year. Finally, there have been no new events in New Hampshire. Currently, there is still only 1 WNV positive dead bird confirmed in this state.

Other : In addition to the raccoon, the horse and the 6 bats mentioned in the last bulletin (Volume 1, Issue 6), another 8 bats (Albany, 5; Columbia, 1; Cortland, 1; and Saratoga, 1), 3 domestic rabbits (Albany, 2; Staten Island, 1) and a chipmunk (Rensselaer) were also identified as positive for WNV in the state of New York. Furthermore, New Jersey also identified 2 more horses infected with the virus in Atlantic city and Ocean city. This brings the total to 3 horses confirmed positive for WNV in New Jersey. Connecticut has also identified 3 horses positive for WNV this year in Danbury, Hebron and Milford. A horse in Bedford, Massachusetts was also confirmed as positive for the virus. Finally, there is still only 1 WNV positive horse confirmed in the state of Rhode Island.

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West Nile Virus Surveillance in Ontario

The seventh issue of the Ontario West Nile Virus (WNV) Bulletin is intended to provide a summary of results of the various surveillance activities in Ontario and an update on other findings elsewhere in Canada and in the United States.

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Sentinel Chicken Surveillance

All 18 sentinel chicken surveillance sites in Brockville (BR), Picton (PI), Guelph (GU), Niagara (NI), Long Point (LP) and Point Pelee (PP) were visited for each of the two weeks ending the 1st and the 8th of September. For the week ending September 1, blood samples were collected from each of the chickens. For these 2 weeks of collection, no chickens tested positive for WNV.

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Human Encephalitis Surveillance

A mailing sent out on July 5, 2000 notified select specialty physicians and all hospitals about the possibility of West Nile Virus infection in Ontario.

A total of 125 individuals were reported as suspect cases of West Nile Virus infection. Of these, 79 (63%) were reported by 35 of the sentinel sites participating in the surveillance program. Another 42 (34%) were reported by other non-sentinel hospitals and physicians in the community. To diagnose the virus, acute and convalescent sera were submitted. On 113 people, at least an acute serum specimen has been submitted for testing. From the 113, twenty-four (21%) had convalescent sera taken. Cerebrospinal fluid (CSF) was also submitted for diagnostic purposes on 70 cases, of which 60 also had an acute serum drawn. Thus far, all specimens examined were negative. Clinical syndromes included 11 individuals with meningitis, 19 with encephalitis and 6 with meningoencephalitis. All were due to causes other than WNV.

infection.

The suspect 125 cases ranged from 2 months old to 84 years old. Since the last bulletin, an additional 5 suspect cases were reported from Toronto. This brings the total reported by sentinel hospitals in Toronto to 24 suspect cases; suspect cases ranged from 2 months old to 80 years of age. Other health departments also had sentinel hospitals that reported suspect cases. These include: Durham Region (2 suspect cases; aged 8 and 13 years old), Region of Peel (14 suspect cases, ranging from 22 to 75 years of age), Halton Region (5 suspect cases, aged 27, 43, 46, 62 and 78), Niagara Region (11 suspect cases, aged 7 months old to 56 years old), Hamilton-Wentworth Region (5, aged 20 to 64 years old), Ottawa-Carleton Region (7 from 9 to 77 years old) and Windsor-Essex (one 62-year-old suspect case).



Mosquito Surveillance

For the weeks ending the August 18, August 25, September 1 and September 8, mosquitoes were collected from each of the 18 Ontario surveillance sites. Results of mosquito enumeration and speciation are available to the week ending the 8th of September, 2000. However, due to the number of mosquitoes collected for the week ending August 18, only live mosquitoes have been counted and speciated. Thus, only **live** mosquito data were examined for this issue of the bulletin.

Analysis of variance of the total mosquito counts at each of the 18 sites in the 6 regions over the 15-week period indicate that the region of Point Pelee has a significantly lower count of total mosquitoes compared to the other sites within the same region (p=0.03 for PP-3). Conversely, one site in each of Brockville, Long Point and Picton are exhibiting higher counts of total mosquitoes compared to other sites in their respective regions. For these 3 sites, the results were statistically significant (p=0.01 for BR-1, p=0.03 for LP-3 and p=0.01 for PI-3). ([See Figure 1.](#)) As with past results, these sites are observed to have higher mean mosquito counts compared to the other sites in their regions. The mean mosquito counts were also calculated for each of the six regions. Although all regions are showing a declining trend at the end of 15 weeks, none of changes were statistically significant.

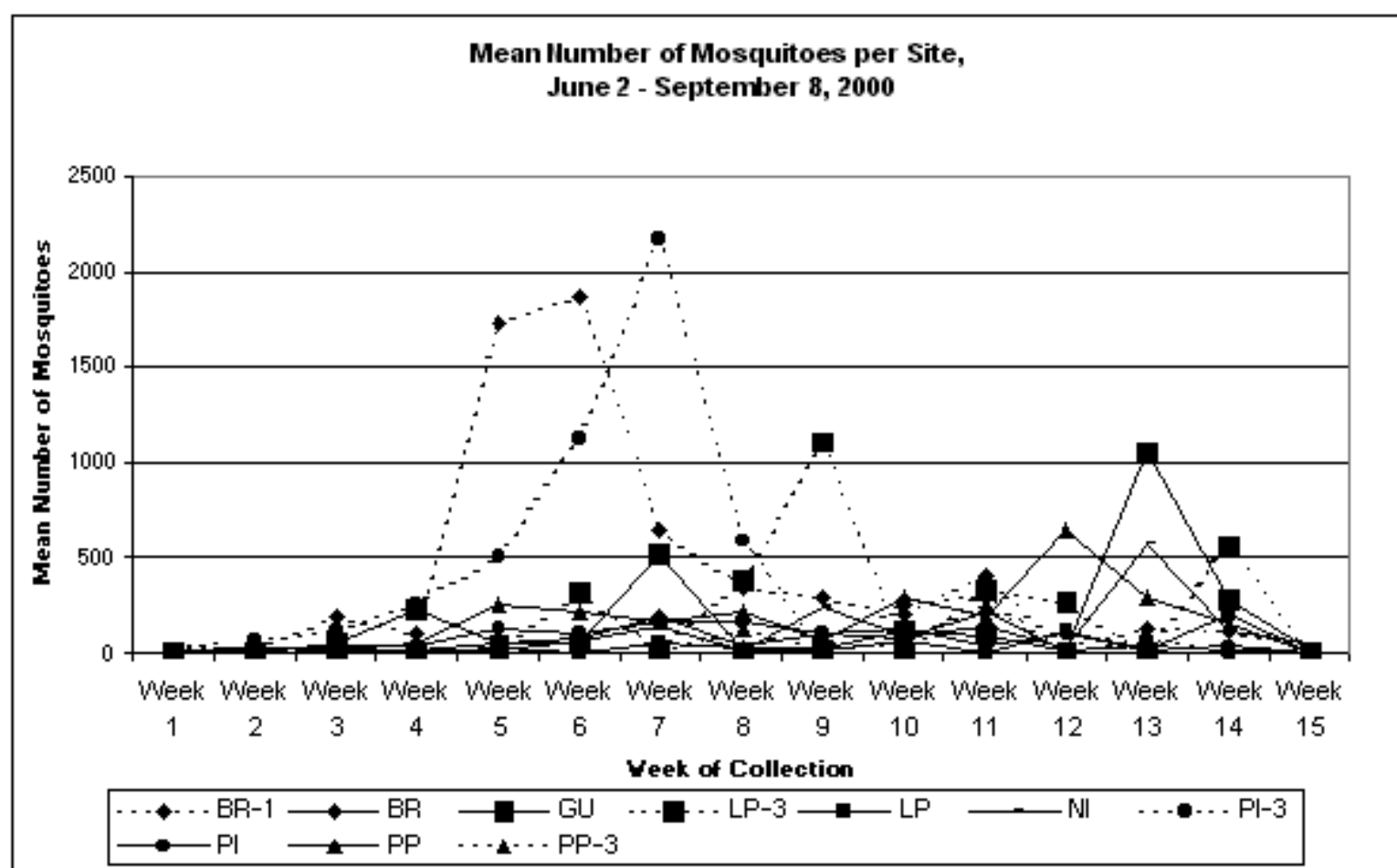
When examining only female mosquitoes, the regions of Brockville, Guelph and Picton are reporting high total numbers of female mosquitoes relative to Long Point, Niagara and Point Pelee ([Table 1](#)). Furthermore, all regions are exhibiting a declining trend after 15 weeks of observation. However, similar to mean mosquito counts, none of these results were significant statistically. On the other hand, upon examination of the proportion of female mosquitoes, statistically significant results were observed for Brockville, Long Point and Picton (p=0.025, 0.042 and 0.025 respectively). While the proportion of female mosquitoes is increasing in Brockville, both Long Point and Picton are starting to show a decrease in the proportion of female mosquitoes after 15 weeks. Since the last mosquito data analysis ([Volume 1, Issue 5](#)), a statistically significant decreasing trend in the proportion of female Culex pipiens mosquitoes continues to be seen in Point Pelee (p=0.009). In addition, this same region is also showing a decrease in the proportion of female Aedes mosquitoes after the 15-week observation period (p=0.004). At the end of 15 weeks, the majority of female mosquitoes have shifted from being of the species Culex pipiens, which is the main vector of West Nile Virus, to the Aedes species.

Table 1
(Note: Only live mosquito data were used for the week ending August 18, 2000)

15 Week Summary				
SITE	Mean Number of Female Mosquitoes Mean (range)	Mean % of Mosquitoes Female	Mean % of Female Mosquitoes Culex pipiens	% of Female Mosquitoes Aedes
Brockville	515.1 (22-1985)	95.7	20.6	74.3
Guelph	503.6 (6-3160)	92.8	18.1	78.1
Long Point	268.4 (1-1133)	89.5	34.7	60.1

<i>Niagara</i>	288.1 (8-1731)	91.1	34.8	56.0
<i>Picton</i>	514.1 (15-1902)	91.1	33.2	63.4
<i>Point Pelee</i>	367.5 (5-1301)	91.8	28.5	68.9

Figure 1
(Note: Only live mosquito data were used for the week ending August 18, 2000)



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Dead Bird Surveillance

In weeks 14 and 15 of observation (weeks ending September 1 and September 8 respectively), dead bird submissions reached a cumulative total of 1296 carcasses. In the week ending September 1, the Canadian Cooperative Wildlife Health Centre (CCWHC) received 78 birds for examination. The following week, a total of 41 birds were submitted to the CCWHC. From Figure 2, there is a downward trend in submission of dead birds for WNV surveillance. Dead bird surveillance is considered the most sensitive means for early virus detection and the ability of the surveillance system to detect viral activity is dependent upon the number of submissions. Of the 1296 dead birds, 85 were deemed unsuitable for autopsy. However, a total of 765 birds underwent an initial autopsy. After initial autopsy, results show that 323 (25%) of the total submissions did not require further diagnosis. Of the 323 birds, 217 had a firm alternative diagnosis. Alternatively, further examination after autopsy was required for 442 of the 1296 carcasses. From these, histology results indicated a firm alternative diagnosis in 42 birds. Meanwhile, 96 had no

apparent West Nile lesions and thus did not require further testing. The results for the remaining 278 carcasses further tested after initial autopsy are still pending. As of the 8th of September, 26 specimens have been classified as suspect cases for West Nile Virus infection after histology.

A dead crow collected in the city of Windsor on August 10 is diagnosed as possible positive for West Nile Virus. Histopathological findings were in keeping with WNV infection, and a liver examination was deemed to be suspicious for WNV by immunohistochemistry testing carried out by the Canadian Food Inspection Agency laboratories. The Health Canada laboratory in Winnipeg completed nested PCR testing on liver, brain and heart, and reported a positive result for West Nile Virus. Further confirmatory testing by a US reference laboratory is being conducted. An announcement of the finding was provided in a press release by Dr. Heimann, Medical Officer of Health for the Windsor-Essex County Health Unit. There has been no other evidence of WNV activity suggestive of an outbreak among birds or other species in the Windsor area, and bird mortality has consistently preceded the occurrence of human cases in the US. This may have been an isolated incident or may turn out to be unconfirmed by other laboratories.

Figure 2

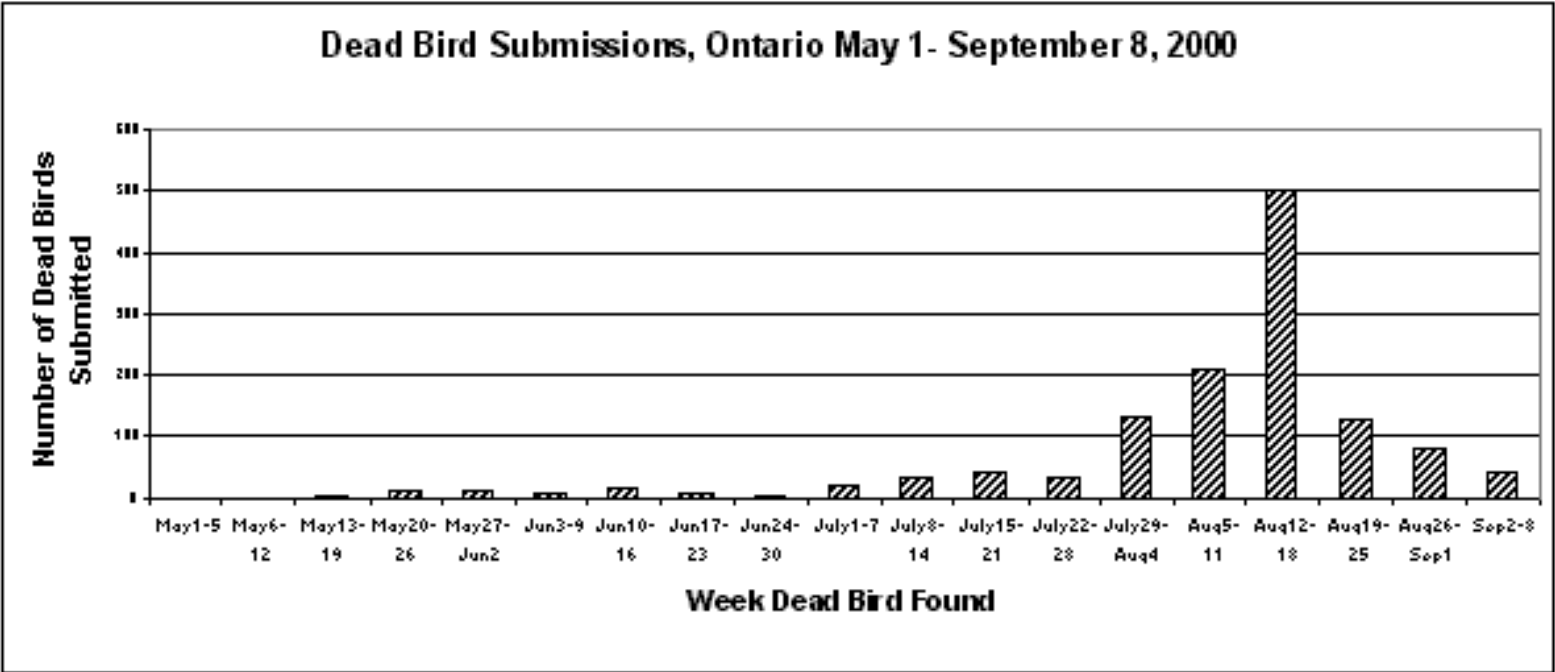
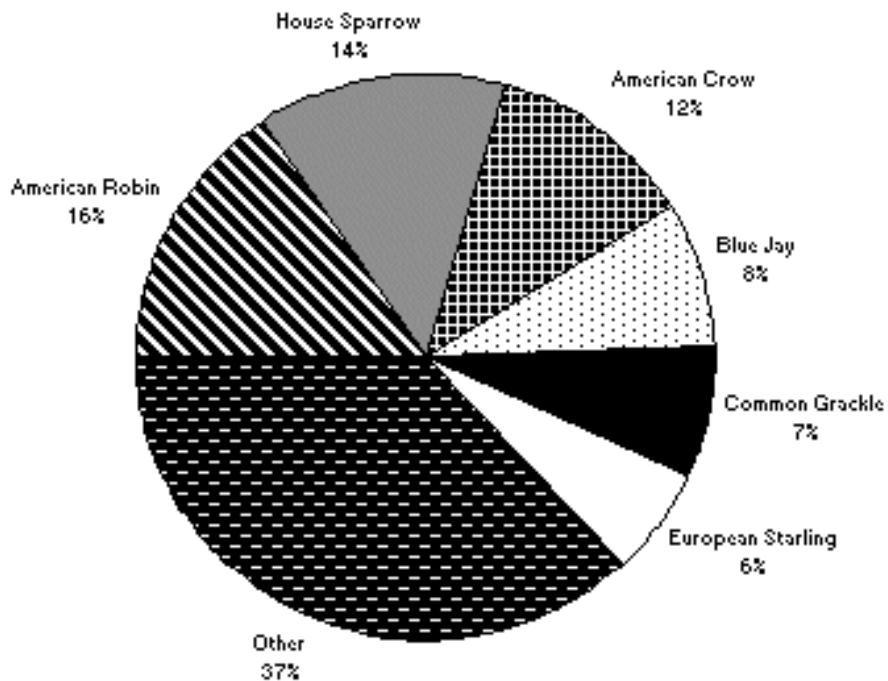


Figure 3

Proportion of Dead Birds by Type May 1 - September 8, 2000



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Other News

Since August of this year, 157 individuals have survived WNV infection in Israel. However, 12 middle-aged and elderly Israelis have died due to complications associated with this viral infection. The youngest Israeli who died of WNV encephalitis was a 54-year old woman who initially had myasthenia gravis. Most of the others were aged over 80 and had chronic diseases. With the number of infected people increasing, intensive pesticide spraying has been carried out at night, especially in the hardest hit area of Sharon, north east of Tel Aviv.

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Additional West Nile Virus Resources

Siegel-Itzkovich, J. Twelve die of West Nile Virus in Israel. BMJ. 2000 September 23; 321(7263):724.

This article provides a summary of the large outbreak of WNV occurring in Israel, which has resulted in about 160 cases to date.

Windsor-Essex County Health Unit Press Release: Bird being tested for West Nile virus

<http://www.newswire.ca/releases/September2000/20/c5473.html>

Health Canada

http://hwcweb.hwc.ca/hpb/lcdc/osh/wnv2000_e.html

New York City Department of Health, West Nile Virus Information

FOR MORE INFORMATION

Comments, questions and suggestions about surveillance results in this bulletin should be directed to :



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West Nile Virus Bulletin

Disease Control Service
Public Health Branch

Volume 1 / Issue 6 September 15, 2000



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Summary of Ontario surveillance activities

Sentinel Chicken surveillance	All sites negative
Active Human surveillance	No confirmed cases
Mosquito counts	Data unavailable for this issue of the bulletin
Dead Bird surveillance	A total of 1123 specimens collected - no confirmed WNV

Summary of surveillance activities in other jurisdictions to date

Other Canada

There has been no confirmation of West Nile Virus in mosquitoes, birds, sentinel chickens or humans in any other Canadian jurisdiction.

United States

Human cases : AAs of September 7, there are 9 human confirmed cases, 8 of which are residents of New York (1 from Brooklyn and 7 from Staten Island) and 1 is a resident of New Jersey. The ages of the cases range from 43 to 87 years old. The earliest onset date was on July 20th; the latest being the 23rd of August. Clinical syndromes included 6 cases with encephalitis and the remaining 3 with aseptic meningitis. Two of these cases remain hospitalized. Since August 28, the West Nile Virus has infected four more people. A 53-year-old female from Staten Island became ill with encephalitis on August 23 and was admitted to a local hospital 5 days later. She remains hospitalized but is improving. A Staten Island man, aged 61 years old, also became infected with the virus. He became ill on the 4th of August with muscle weakness and encephalitis. He was admitted to a hospital on August 6 and was released 5 days later. Another Staten Island man, aged 52 years old, was diagnosed with symptoms of meningitis on August 15. He was admitted to a local hospital on the 18th of August, but was released a week later (August 25). Finally, the New Jersey case is a man who is 43 years of age. He was admitted to a hospital in early August with symptoms consistent with WNV infection but has since been discharged.

Birds and mosquitoes : By September 7, a total of 523 dead birds have been reported as positive for WNV this year for the state of New York. Since the last bulletin, 6 more counties have reported positive dead bird findings, bringing the total to 47 New York counties reporting positive results. Of these 47, nine are located immediately south of Ontario (Counties of Cayuga, Chautauqua, Clinton, Erie, Franklin, Monroe, Niagara, Oswego and St. Lawrence). Of concern to Ontario is a dead bird found in Parishville, New York, which is 45 km south of Cornwall and 65 km east of Brockville. In addition, a total of 216 positive mosquito pools, 1 sentinel chicken and 6 live wild birds have also been identified as positive for WNV in New York. Meanwhile, another 264 bird carcasses were found to be positive for the virus in numerous counties in New Jersey as of the 7th of September. A total of 586 dead birds and 7 mosquito pools have been found to be positive in New Jersey. In Connecticut, 240 dead birds have tested positive in 38

communities across the state. Another positive mosquito pool has also been identified in Norwalk, Fairfield County, Connecticut. This is the 3rd positive pool for the state of Connecticut but is the 2nd positive pool identified in the town of Norwalk. Currently, there are no plans for pesticide spraying. Another dead crow has been recognized as positive for WNV in Rhode Island. This brings the total of positive dead birds in this state to 4 this year. In response to positive findings in Rhode Island and the neighbouring state of Massachusetts (i.e., dead crow found in Seekonk), the state has done spraying in the towns of Coventry, Cranston, Middleton, Newport, Warwick and Westerly with the pyrethroid-based adulticide Sumithrin. As for the state of Massachusetts, a total of 54 dead birds were confirmed to have been infected with WNV in 16 cities as of August 28. The state has done ground spraying using the synthetic pesticide Resmethrin. Finally, a crow collected on August 21 in the city of Manchester, New Hampshire has tested as positive for the virus. With the isolation of the virus, mosquito detection activities were increased in the Manchester area. The state of New Hampshire also plans to conduct mosquito control activities in public areas near the site of this isolation.

Other : The first report of a raccoon infected with West Nile Virus has been made by the state of New York (Manhattan, New York City). In addition, the first confirmed case of equine encephalitis due to WNV was also observed in Staten Island. The horse fell ill with symptoms of a WNV infection on August 17, and was euthanized on the 20th of August. In addition to the raccoon and the horse, New York has also identified 4 bats in Albany and 2 bats in Ontario (New York) as positive for the virus. Another horse was also identified as positive for WNV in Cape May, New Jersey. This horse was euthanized on August 30 after becoming ill 3 days earlier. A third horse in South Kingstown, Rhode Island was confirmed on September 4 to have been infected with the virus. The horse was euthanized on August 28. In response to this finding, ground spraying was done in South Kingstown and Narragansett. This is the first time a horse has contracted the disease in each of the 3 states this year.

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West Nile Virus Surveillance in Ontario

This is the sixth issue of the Ontario West Nile Virus (WNV) Bulletin. It includes a summary of results of the various surveillance activities in Ontario and other findings elsewhere in Canada and in the United States.

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Sentinel Chicken Surveillance

Successful surveillance of all 18 sentinel chicken surveillance sites in Brockville (BR), Picton (PI), Guelph (GU), Niagara (NI), Long Point (LP) and Point Pelee (PP) was completed for the weeks ending August 18 and August 25. For the both weeks, blood samples were collected from all 18 sites in all six regions. However, one site in Guelph region had only 9 of 10 samples collected in the last week. The reason for this incomplete sampling was due to the death of a sentinel bird. This bird has since been taken for pathobiological testing; results are still pending. Neither the sentinel chicken serum samples nor the sentinel chickens have tested positive for the virus.

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Human Encephalitis Surveillance

On July 5, 2000, a mailing was sent out to select specialty physicians and all hospitals about the possibility of West Nile Virus infection in Ontario.

As of September 1, 2000, sixty-three (63) suspect cases were reported by 30 of the 58 hospitals participating in the active human meningo-encephalitis surveillance program. None have been confirmed due to West Nile Virus. Forty-two (27%) were first identified by a public health laboratory. In addition to those reported through active surveillance, community physicians and non-sentinel hospitals reported another 31

cases. This brings the total of suspected human infections to 94 people. Of these, 11 had encephalitis, 5 had meningoencephalitis and 6 had meningitis. To diagnose the virus, acute and convalescent sera and cerebrospinal fluid have been submitted for testing; all specimens were negative for the virus. The suspect cases ranged from as young as 2 months old to 84 years old in age. In the region of Toronto, 19 suspect cases were reported. Five of these were reported by sentinel hospitals located in the city of Toronto. The youngest individual reported was 2 months old; the oldest is 80 years of age. Durham Region also reported 2 suspect cases aged 8 and 13 years old. The Region of Peel, meanwhile, increased from 5 to 11 suspect cases since the last bulletin. These ranged from 22 to 75 years of age. Finally, 4 suspect cases (aged 27, 43, 46 and 78) have been reported by the Halton Region health unit to date.

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Mosquito Surveillance

Surveillance results of mosquito enumeration and speciation from all 18 Ontario mosquito sites are not available for the week ending August 18. Analysis of results for the weeks ending August 18, August 25, September 1 and September 8 will be available in the next bulletin (Volume 1, Issue 7).

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Dead Bird Surveillance

As of August 25, 2000, a total of 1123 dead bird carcasses have been submitted by health units in Ontario. For the week ending August 18, the Canadian Cooperative Wildlife Health Centre (CCWHC) received 471 birds. An additional 116 birds were submitted the following week. The number of submissions by health unit is not available. However, since dead bird surveillance is likely the most sensitive means of detecting the virus as early as possible, the downward trend in submission of dead birds for WNV surveillance is of some concern. Adequate numbers are needed to be able to carry out an effective wild bird surveillance program in Ontario.

All 1123 dead bird carcasses submitted in Ontario have tested negative for West Nile Virus. Twenty-seven percent (304) of the total number of carcasses did not require further diagnosis after initial autopsy. Of these, 182 had a firm alternative diagnosis. Meanwhile, 305 (27%) of all the birds submitted required further examination after autopsy. From these, a firm alternative diagnosis was discovered after histology in 38 carcasses while 29 did not require further testing. Results on the remaining 238 carcasses are still pending. After histology, 23 specimens have been labeled as suspect cases for West Nile Virus infection. To date, findings have been negative on the submitted specimens that have been tested.

Figure 2

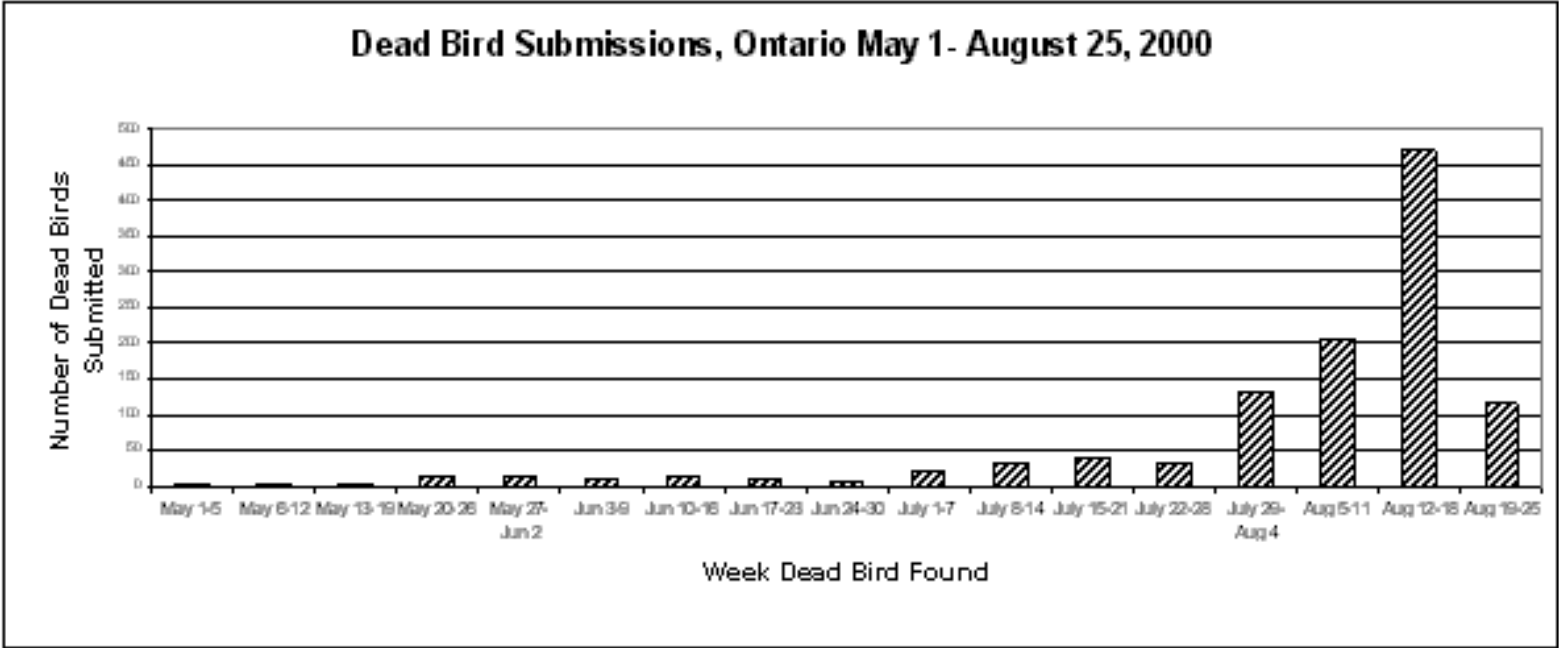
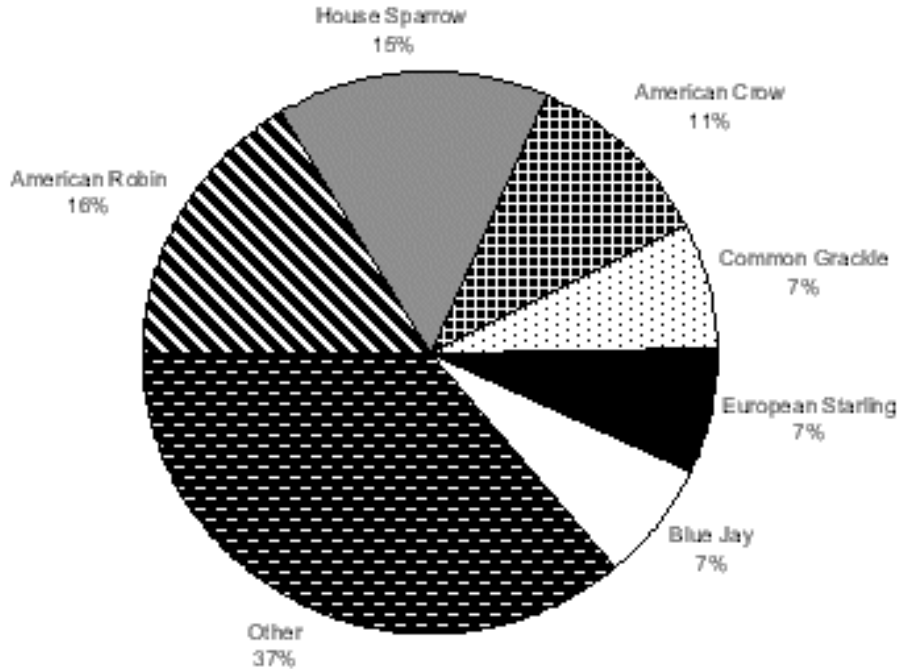


Figure 3

Proportion of Dead Birds by Type May 1 - August 25, 2000



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Additional West Nile Virus Resources

Health Canada

http://hwcweb.hwc.ca/hpb/lcdc/osh/wnv2000_e.html

New Jersey Department of Health and Senior Service, West Nile Virus Alert and Fact Sheets

<http://www.state.nj.us/health/cd/westnile/enceph.htm>

New York City Department of Health, West Nile Virus Information

<http://www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html>

FOR MORE INFORMATION

Comments, questions and suggestions about surveillance results in this bulletin should be directed to :



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Public Health Branch

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Summary of Ontario surveillance activities

Sentinel Chicken surveillance	All sites negative
Active Human surveillance	No confirmed cases
Mosquito counts	Culex species present - currently < 42% of female population at all sites
Dead Bird surveillance	A total of 525 specimens collected - no confirmed WNV

Summary of surveillance activities in other jurisdictions to date

Other Canada

West Nile Virus has not been confirmed in mosquitoes, birds, sentinel chickens or humans in any other Canadian jurisdiction.

United States

Human cases : As of August 28, six human cases, all residents of New York City, five of whom are age 63 or older and one 52-year-old individual, have been confirmed. Five of the individuals are from Staten Island, and one is from Brooklyn. Two of these are still in hospital and four people are recovering at home.

The case from Brooklyn is an 87 year-old woman who was admitted to a local hospital for a surgical procedure on August 7 and developed encephalitis on August 15. She remains hospitalized and is in critical condition. The Staten Island resident is also a woman (84 years old). She became ill with symptoms of encephalitis on August 18, and was admitted to a local hospital on August 20. She is reported to be in stable condition.

Birds and mosquitoes : 168 more dead birds were diagnosed as positive for WNV since August 17. This brings the total of positive bird carcasses to 381 for this year in New York. Of the 41 New York counties with positive dead birds, 6 are located immediately south of Ontario (Chautauqua, Clinton, Erie, Franklin, Niagara and Oswego Counties). Most notable are 2 positive dead crows found in Lewiston, New York, which is approximately 2 miles across the Niagara River from Queenston, Ontario. 43 more mosquito pools and another wild live bird (Brooklyn) have tested positive for the virus in New York from August 18 to August 28. In New Jersey, 322 birds (321 crows and a cockatiel) were found to have tested positive in 10 counties as of August 28. The ten counties are Bergen (84), Essex (39), Hudson (36), Mercer (1), Middlesex (68), Monmouth (29), Morris (3), Passaic (27), Somerset (1) and Union (34) Counties. The West Nile Virus positive bird in Mercer is the first WNV specimen in that county. Also, 4 pools of mosquitoes collected in Bergen County in late July have tested positive for the presence of the virus. Furthermore, an additional 68 crows have tested positive for the virus in the state of Connecticut since August 17, 2000. This brings the total to date for this year to 119

birds (i.e., 115 crows, 2 robins, 1 dove and 1 blue jay) testing positive in 23 communities in 5 Connecticut counties. There are no plans for pesticide spraying in Connecticut. Finally, three positive dead crows tested positive for the virus in Rhode Island. The first crow was found in Warwick on August 8, 2000. The second crow was collected on August 16 in Newport, and the remaining crow was found in Westerly on August 18. In response to the first dead bird found, Rhode Island has done spraying in Warwick and Cranston with the pyrethroid-based adulticide Sumithrin. Currently, plans are being made to also spray Westerly, Newport and Middletown.

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West Nile Virus Surveillance in Ontario

The fifth issue of the Ontario West Nile Virus (WNV) Bulletin provides a summary of results of the various surveillance activities in Ontario. It also updates readers on surveillance findings elsewhere in Canada and in the United States.

Erratum : In the last issue of the bulletin (Volume 1, Issue 4; August 18, 2000), the summary of mosquito counts and dead bird surveillance were incorrectly reported as <35% of female population as *Culex* species and 102 specimens collected respectively. The correct information are <42% of female population as *Culex* species and 163 specimens collected. In addition, the "Mean % of Female Mosquitoes, *Culex pipiens*" column in the table found in the Mosquito Surveillance section should have the following values listed for each site: Brockville, 17.4; Guelph, 23.0; Long Point, 41.5; Niagara, 33.0; Picton, 29.7; and Point Pelee, 19.3.

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Sentinel Chicken Surveillance

For the weeks ending August 4 and August 11, 2000, all 18 sentinel chicken surveillance sites in the surveillance areas of Brockville (BR), Picton (PI), Guelph (GU), Niagara (NI), Long Point (LP) and Point Pelee (PP) were visited.

Blood samples were collected from all 18 sites in all six regions for each of the weeks ending August 4th and August 11th, 2000. As of August 11, none of the sentinel chicken serums have tested positive for West Nile Virus.

TOP

Human Encephalitis Surveillance

Selected specialty programs and all hospitals were notified about the possibility of West Nile Virus infection in Ontario in a mailing sent July 5, 2000.

Currently, 55 hospitals enrolled in the active human meningo-encephalitis surveillance program are participating. As of August 18, 2000, a total of 26 suspect cases were reported. Twenty-four of these were from 16 sentinel hospital sites, while the remaining 2 were reported through passive surveillance. Of the sentinel hospital cases, 3 were initially identified by laboratory rather than by the site nurse. Meanwhile, of the 2 passively reported cases, 1 was reported by a physician. Acute and convalescent sera and cerebrospinal fluid have been submitted for testing. From these specimens, there has been no confirmation of West Nile Virus. There are still only 2 cases diagnosed with meningo-encephalitis (i.e., a 14-year-old child from the Ottawa-Carleton health unit region and a 29-year-old individual from the Hamilton-Wentworth region). In addition to the 4 cases aged 34, 35, 54 and 58 years reported in the last bulletin, a 33 year old from Peel region is considered a suspect case. Furthermore, an additional 2 cases (aged 70 and 80 years) from Toronto health unit hospitals have been reported. Thus, there are 9 cases reported to date from the Toronto region. Finally, all but 6 of the 26 suspect cases have recovered or are recovering. These 6 cases have their status listed as unknown.

TOP

Mosquito Surveillance

Results of mosquito enumeration and speciation are available up until August 11, 2000. For the weeks ending August 4 and August 11,

mosquitoes were collected from all 18 Ontario mosquito surveillance sites.

To be able to compare the total mosquito counts at each of the 18 sites in the 6 regions, an analysis of variance for the 11 weeks observed was carried out. The results indicate that one site in Brockville (BR-1) and one site in the Picton region (PI-3) had higher mean mosquito counts than the other sites in their respective regions. (See Figure 1.) For these 2 sites, the results were statistically significant (i.e., $p=0.01$ for BR-1 and $p=0.02$ for PI-3). Consistent with past results, these sites were observed to have higher mean mosquito counts compared to the other sites in their regions. The results also noticeably show that one site in Long Point (LP-3) had higher counts of mosquitoes than the other sites within its region. However, the difference was not statistically significant.

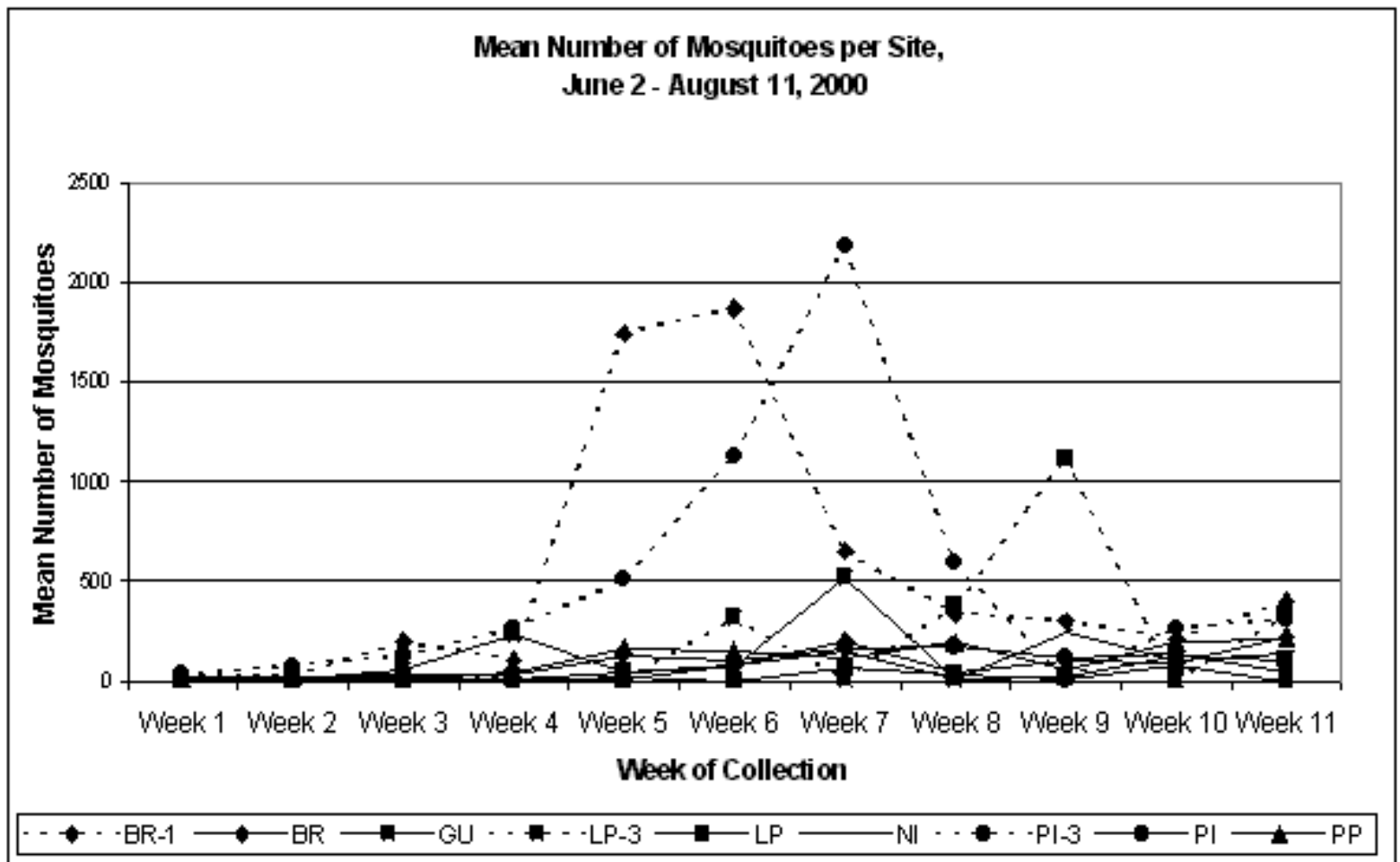
Mean mosquito counts from the three sites of each of the six regions were also examined. The results are summarized in Table 1. For the 11-week period, it was observed that both the regions of Niagara and Point Pelee were showing an increasing trend of mean total mosquitoes. For these 2 areas, the results were statistically significant (i.e., $p=0.02$ and $p=0.01$ for Niagara and Point Pelee respectively). Furthermore, each of these same regions also reported a significant difference in trend for the total number of female mosquitoes (i.e., $p=0.01$ for each of the 2 areas). For Niagara, the total number of female mosquitoes is again on an increasing trend by the end of 11 weeks. Point Pelee, on the other hand, has been declining after the increase observed in week 10 from week 9. Meanwhile, for the proportion of female mosquitoes seen, a statistically significant result was seen only for the region of Long Point ($p=0.03$). After decreasing in week 10, the proportion of female mosquitoes in Long Point is again increasing at the end of week 11. Over the 11-week observation period, a statistically significant decreasing trend in the proportion of female *Culex pipiens* mosquitoes was observed in the regions of Brockville, Niagara and Point Pelee ($p=0.001$, 0.01 , 0.0001 respectively). Up until week 10, these regions were reporting an increasing trend of female mosquitoes that are *Culex pipiens*. In addition, these same regions are also showing a significant increasing trend in the proportion of female *Aedes* mosquitoes (i.e., $p=0.001$ for BI, $p=0.004$ for NI and $p=0.0001$ for PP).

Alternatively, at the end of 11 weeks, the region of Picton continues to report a statistically significant increasing trend for the proportion of female *Culex pipiens* mosquitoes ($p=0.002$) and a statistically significant decreasing trend for the proportion of female *Aedes* mosquitoes ($p=0.001$). It should be noted that for the regions of Long Point, Picton and Point Pelee, the majority of female mosquitoes continue to be of the species *Culex pipiens*, which is the main vector of West Nile Virus.

Table 1

11 Week Summary				
SITE	Mean Number of Female Mosquitoes Mean (range)	Mean % of Mosquitoes Female	Mean % of Female Mosquitoes <i>Culex pipiens</i>	% of Female Mosquitoes <i>Aedes</i>
<i>Brockville</i>	666.3 (35-1985)	94.5	22.1	74.2
<i>Guelph</i>	321.6 (6-1552)	90.4	22.8	73.3
<i>Long Point</i>	230.3 (1-1133)	87.7	41.7	53.3
<i>Niagara</i>	186.4 (8-661)	89.4	37.6	52.6
<i>Picton</i>	590.5 (35-1902)	89.1	35.1	62.6
<i>Point Pelee</i>	304.2 (19-546)	91.0	27.1	71.4

Figure 1



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Dead Bird Surveillance

In the last two weeks of observation (weeks 10 and 11), weekly submissions of dead bird carcasses reached a total of 330 birds. In week 11 alone, 199 dead birds were submitted, which is higher than weeks 1 to 9 combined. Due to this large increase, data entry is delayed, and for weeks 10 and 11, a table showing the number of submissions by health unit is not available. The tremendous increase in health unit participation in dead bird surveillance following the reports of confirmed WNV in adjacent US counties will assist in early detection of the virus in Ontario.

In Ontario, 525 bird carcasses have been submitted by August 11, 2000. Of the total number of carcasses, 242 (46%) did not require further diagnosis after initial autopsy, and 182 of these had a firm alternative diagnosis. For all of the birds submitted, 211 (40%) required further examination after autopsy. From these, histology results have indicated a firm alternative diagnosis in 35 carcasses. Another 27 of the 211 carcasses did not require further testing; results on a further 133 carcasses are still pending. To date 16 specimens have been classified as suspect cases for West Nile Virus infection after histology. Twelve of the 16 have tested negative after further testing, while the remaining 4 suspect cases are still undergoing testing procedures. As of August 11, 2000, no dead bird carcasses submitted in Ontario have tested positive for West Nile Virus.

Figure 2

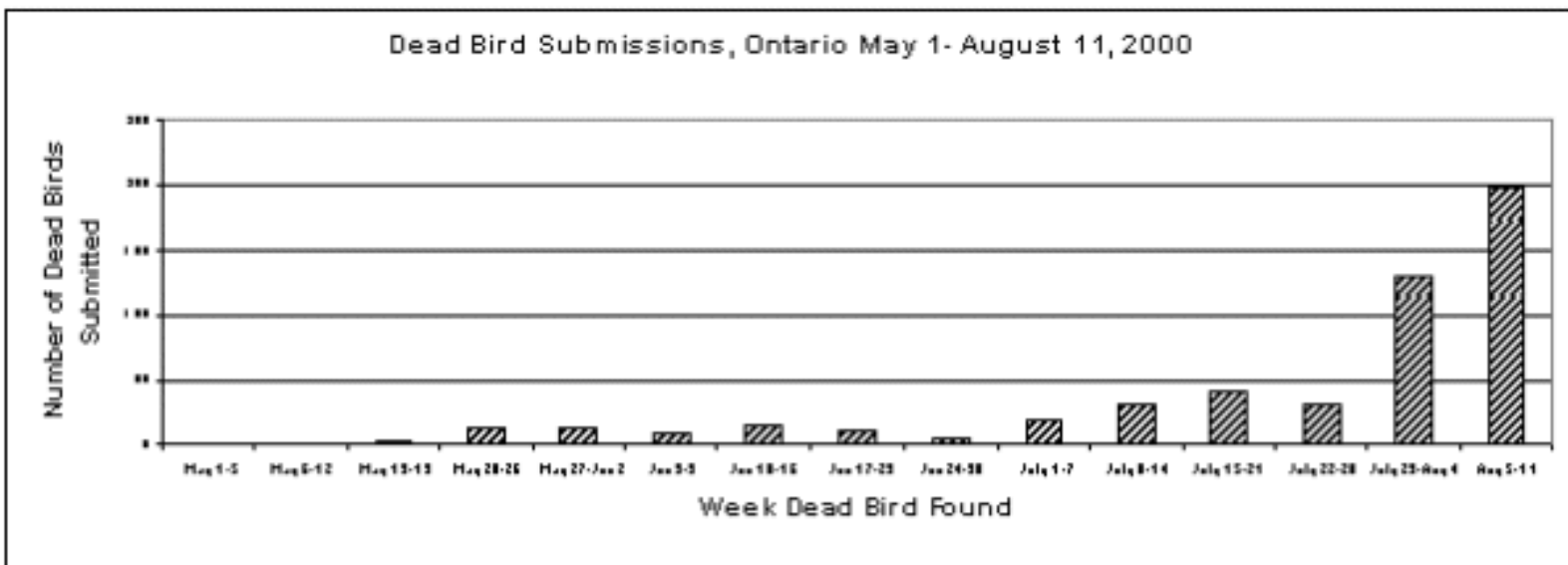
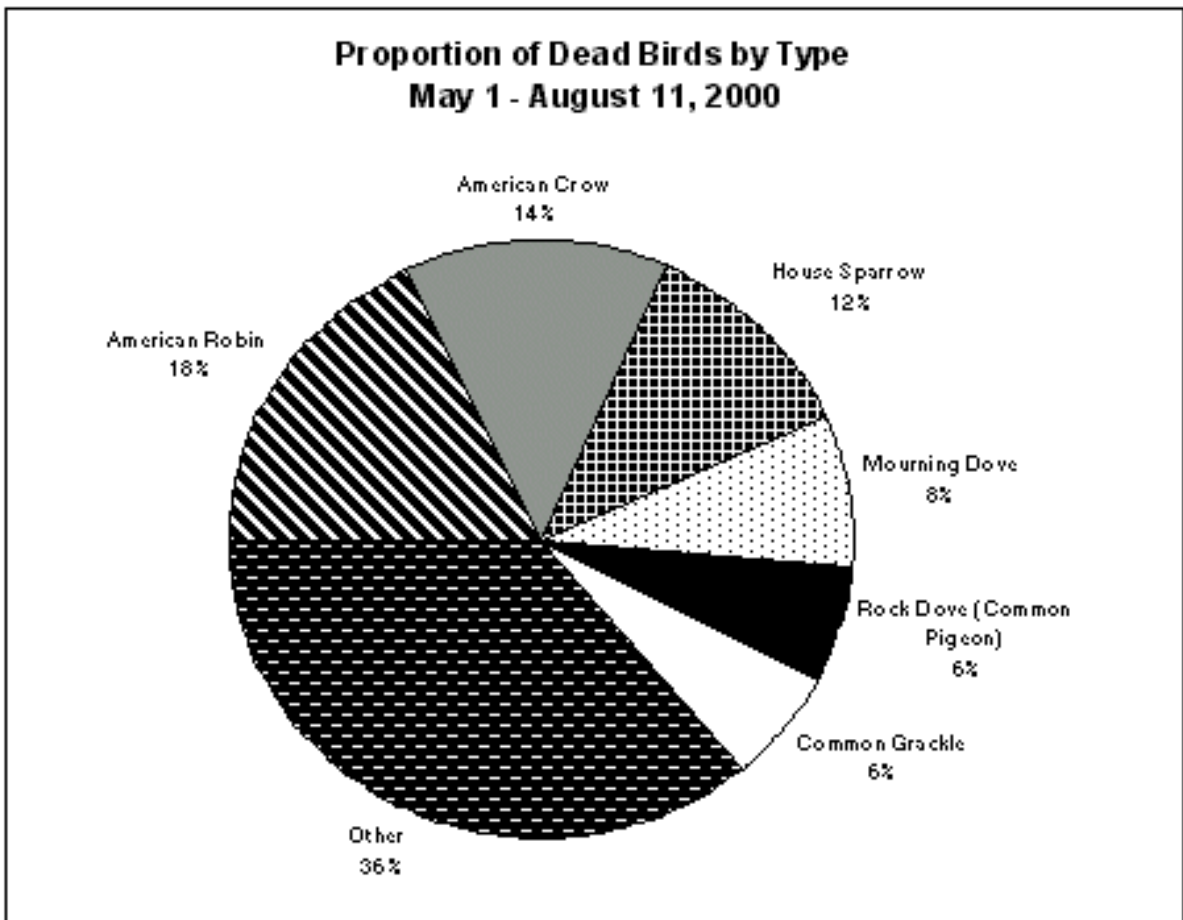


Figure 3



Other News

A restriction on the species of submission to the Canadian Cooperative Wildlife Health Centre has been made due to the large surge in submissions following the identification of WNV in US counties immediately bordering on Ontario. West Nile Virus dead bird submissions have been restricted to crows, blue jays and hawks of any type. Any other species involved in outbreaks (i.e., more than 3 to 4 birds of the same species found in a local area within a 2 to 3 day period **except** mourning doves due to an outbreak of trichomoniasis) and those with a clear

history of nervous system signs will also be examined

Finally, with 2 dead birds positive for West Nile Virus found in Lewiston, New York (Niagara County), which is located immediately along the Canada-United States border and is east of the Niagara health unit, the region of Niagara will carry out mosquito collection using gravid traps in areas along the Niagara River. The gravid traps to be employed at these areas allows increased sensitivity of catching gravid female mosquitoes which are suspected of carrying West Nile Virus.

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Additional West Nile Virus Resources

Health Canada

http://hwcweb.hwc.ca/hpb/lcdc/osh/wnv2000_e.html

Canadian Cooperative Wildlife Health Centre

<http://wildlife.usask.ca/WestNileAlertHTML/WestNileAlertEng1.htm>

New York City Department of Health

<http://www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html>

FOR MORE INFORMATION

Comments, questions and suggestions about surveillance results in this bulletin should be directed to :



Public Health Branch

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West Nile Virus Bulletin

Disease Control Service
Public Health Branch

Volume 1 / Issue 4 August 18, 2000



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Summary of Ontario surveillance activities for the week ending July 28, 2000

Sentinel Chicken surveillance	All sites negative
Active Human surveillance	No cases detected
Mosquito counts	<i>Culex</i> species present-currently < 35% of female population at all sites
Dead Bird surveillance	102 specimens collected - no confirmed case of WNV

Summary of surveillance activities in other jurisdictions to date

Other Canada

No other jurisdictions in Canada have reported confirmed West Nile Virus in mosquitoes, birds, sentinel chickens or humans.

United States

As of August 17, 2000, 3 human cases of West Nile Virus have been confirmed in New York. All 3 are residents of Staten Island, New York. On August 12, a 64-year-old woman and a 63-year-old man were announced as having tested positive for West Nile Virus at the New York City Department of Health's laboratories. The 64 year-old woman became ill with symptoms of meningitis on August 4 and was admitted to a local hospital two days later. Meanwhile, the 63 year-old man was admitted to a local hospital on August 5 after coming down with symptoms of meningitis on July 31. Both individuals were infected before the most recent spraying efforts on Staten Island. Both individuals are now recovering. Aside from the human cases, a total of 213 dead birds in 27 counties have tested positive for the virus in New York this year. Of the 27 counties, 3 are located across the Ontario border. These include Erie, Franklin and Niagara. The bird in Erie County was found in the town of Tonawanda, which is adjacent to Niagara Region health unit. A positive dead bird in Franklin County, on the other hand, was found about 70 km from Cornwall, Ontario. A positive dead bird was also found in Syracuse (Onandaga county), which is about 120 km from Kingston, Ontario. In addition, 128 mosquito pools, 1 sentinel chicken and 5 wild live birds have tested positive for the virus in New York so far this year. To date, 165 birds (164 crows and a cockatiel) have tested positive in 9 New Jersey counties. Positive birds have been found in Bergen (51), Essex (10), Hudson (18), Middlesex (40), Monmouth (13), Morris (1), Passaic (17), Somerset (1) and Union (14) Counties. Finally, the state of Connecticut has announced that an additional 11 birds have tested positive for the virus (i.e., 2 crows in Milford, 4 crows in Fairfield, 3 crows and 1 robin in Stamford and 1 crow in West Hartford). A positive bird-biting mosquito pool was also isolated in Norwalk. The state has done larvicide application in the past, and there are currently no plans for pesticide spraying.

West Nile Virus Surveillance in Ontario

This is the fourth issue of the Ontario West Nile Virus (WNV) Bulletin. Its purpose is to provide a summary of results of the various surveillance activities in Ontario, as well as to update readers on surveillance findings elsewhere in Canada and in the United States.

Sentinel Chicken Surveillance

Sentinel Chicken Surveillance was carried out successfully to the week ending July 28, 2000. All eighteen sites located in the six potentially high-risk areas of Brockville (BR), Picton (PI), Guelph (GU), Niagara (NI), Long Point (LP) and Point Pelee (PP) were visited.

For the week ending July 21, 2000, blood samples were collected from all 18 sites in all six regions. However, at one site in each of the Picton and Long Point regions, only 9 of 10 samples were taken. At both sites, the reason for incomplete sampling was due to the death of sentinel birds. For the week ending July 28th, all 18 sites were visited but one site in each of the Long Point and Guelph regions had only 9 of 10 samples collected. In the Long Point region, the dead bird from the previous week was replaced and in the Guelph region one more dead bird was found. No other difficulties in sampling of chickens have been noted. As of the week ending July 28, all sentinel chicken serums have tested negative for West Nile Virus. To date, no sentinel chickens in Ontario have tested positive for West Nile Virus.

Human Encephalitis Surveillance

As a notification for the possibility of West Nile Virus in Ontario, a mailing was sent July 5th to selected specialty programs and all hospitals.

As of August 11, 2000, there are 55 hospitals participating in active human meningo-encephalitis surveillance. From 16 sentinel hospital sites, reports of 20 suspect cases have been received. Four of these 20 cases were initially identified by laboratory rather than by the site nurse. In addition, 2 more suspect cases were reported through passive surveillance. Of these two, 1 was reported by a physician. For disease diagnosis, various specimen types, such as acute and convalescent sera and cerebrospinal fluid, were used. From these, West Nile Virus has not been confirmed. Out of the 22 suspect cases, 2 were diagnosed with meningo-encephalitis: a 14-year-old child from the Ottawa-Carlton health unit region and a 29-year-old individual from the Hamilton-Wentworth region. Furthermore, 4 cases, aged 34, 35, 54 and 58 years, were reported from hospitals in Peel region. A 43-year-old case was also seen at a hospital in the Halton health unit region. From Toronto health unit hospitals, 7 cases (aged 2 months, 4 months, 2, 11, 32, 21 and 45) were reported as suspect cases.

Mosquito Surveillance

Mosquito surveillance progressed in Ontario and results of mosquito enumeration and speciation are available to the week ending July 28, 2000. Mosquitoes were collected from all 18 sites for the weeks ending July 21st and 28th, 2000.

Mean mosquito counts at each of the 18 sites in the 6 regions were compared using analysis of variance over the 9-week period. One site in Brockville (BR-1) and one site in the Picton region (PI-3) indicated significantly higher mean mosquito counts than the other sites in the region ($p = 0.02$, 0.04 respectively). Previously in Volume 1, Issues 2 and 3 of the West Nile Virus Bulletin, these sites were noted as having higher mean mosquito counts than the other sites in their regions. Additionally, one site in Long Point (LP-3) maintained markedly higher counts of mosquitoes than the other sites within the same region, but the difference was not statistically significant ([see Figure 1](#)).

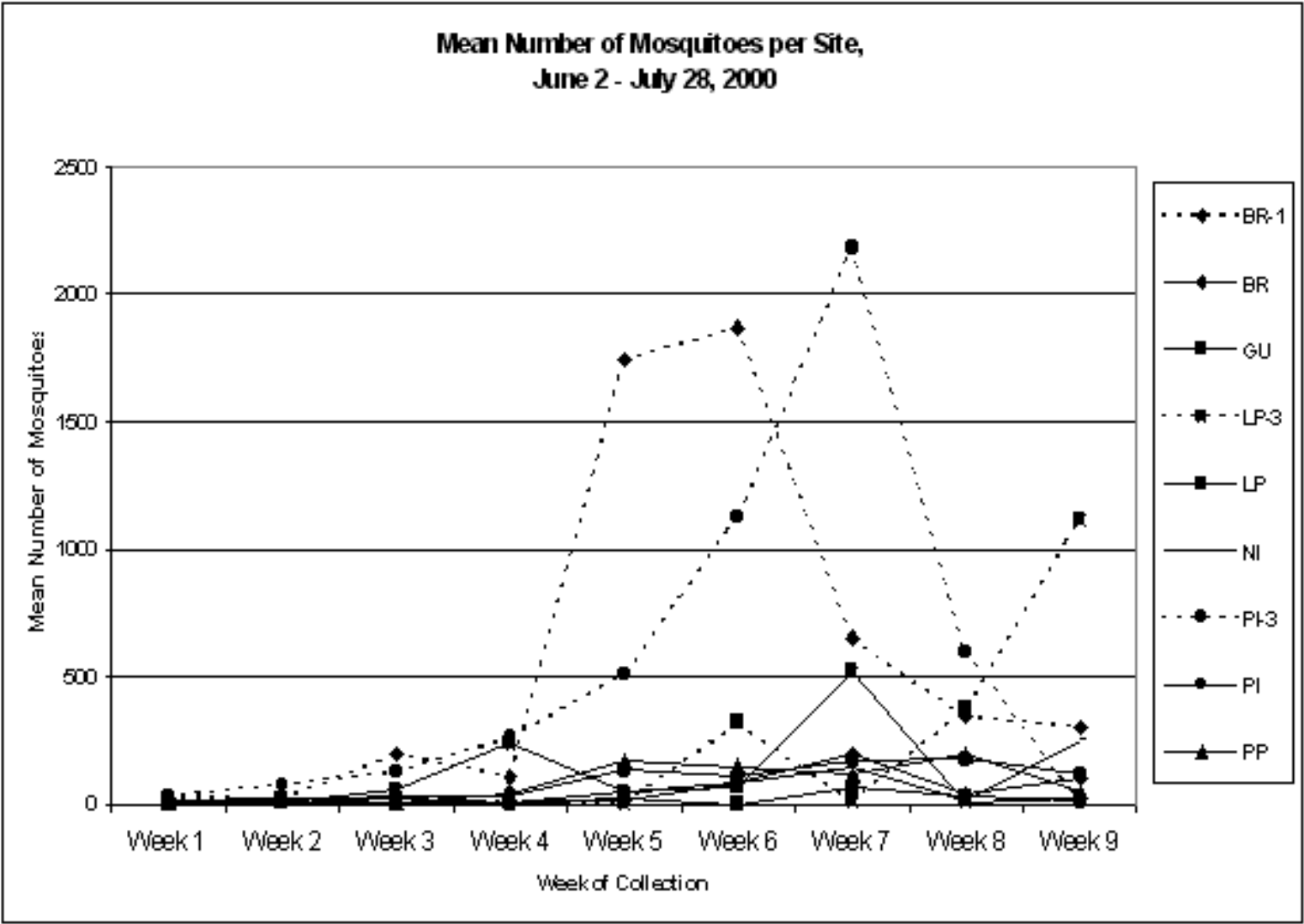
Total mosquito counts from the three sites of each of the six regions were pooled for further analysis. A 9-week summary is provided in the table below. The regions of Niagara and Long Point reported a significant increasing trend of mean total mosquitoes over the 9-week period ($p = 0.02$, 0.04 respectively). Of the 6 regions, none indicated a significant increasing trend in the proportion of female mosquitoes. Over the 9-week period Brockville, Niagara, Picton and Point Pelee regions had a significant increasing trend in the proportion of female mosquitoes that are *Culex pipiens* ($p = 0.001$, 0.021 , 0.015 , 0.003 respectively). The regions of Brockville, Niagara, Picton and Point Pelee indicated a significant

decreasing trend in the proportion of female mosquitoes that are Aedes. In these four regions, the female population of mosquitoes is increasingly becoming predominantly Culex pipiens, which is the primary vector of West Nile Virus.

Table 1

9 Week Summary				
SITE	Mean Number of Female Mosquitoes Mean (range)	Mean % of Mosquitoes Female	Mean % of Female Mosquitoes Culex pipiens	% of Female Mosquitoes Aedes
<i>Brockville</i>	681.9 (35-1985)	93.8	10.4	80.4
<i>Guelph</i>	319.3 (6-1552)	88.8	20.6	73.9
<i>Long Point</i>	228.2 (1-1133)	85.2	34.1	52.9
<i>Niagara</i>	147.8 (8-661)	87.3	26.3	57.3
<i>Picton</i>	620.8 (35-1902)	87.9	21.5	68.5
<i>Point Pelee</i>	243.2 (19-518)	91.1	12.9	79.4

Figure 1



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Dead Bird Surveillance

Weekly submissions of dead bird carcasses to the week ending July 28, 2000 are illustrated in [Figure 2](#). The four weeks in July have had higher weekly submissions of dead birds than in all other weeks. The last three weeks in July had 86 submissions of dead bird, which is higher than all previous weeks combined. As of the week ending August 4, 30 (81%) health units have made a total of 140 submissions (each submission could involve multiple carcasses). An increase in health unit participation was seen in the last 3 weeks, as 13 health units made their first submissions. Thus far, only 7 health units have yet to make dead bird submissions. This increase in health unit participation is important, since dead bird surveillance is likely the most sensitive component of Ontario's efforts to detect any virus activity as early as possible.

As of July 28, 2000, 163 bird carcasses have been submitted for examination in Ontario. Initial autopsy indicated that 55 (87.3%) carcasses did not require further diagnosis, and 49 of these had a firm alternative diagnosis. Further examination was required after autopsy for 101 of the 163 dead birds submitted. Histology results have indicated a firm alternative diagnosis in 23 of the 101 carcasses, with another 18 not requiring further testing since no indications of West Nile Virus lesions were present. Results on a further 45 carcasses are pending. To date 14 specimens have been classified as suspect cases for West Nile Virus infection after histology, of these, 10 have tested negative after further testing with 4 suspect cases still awaiting testing. Thus far, no dead bird carcasses submitted in Ontario have been confirmed positive for West Nile Virus.

Figure 2

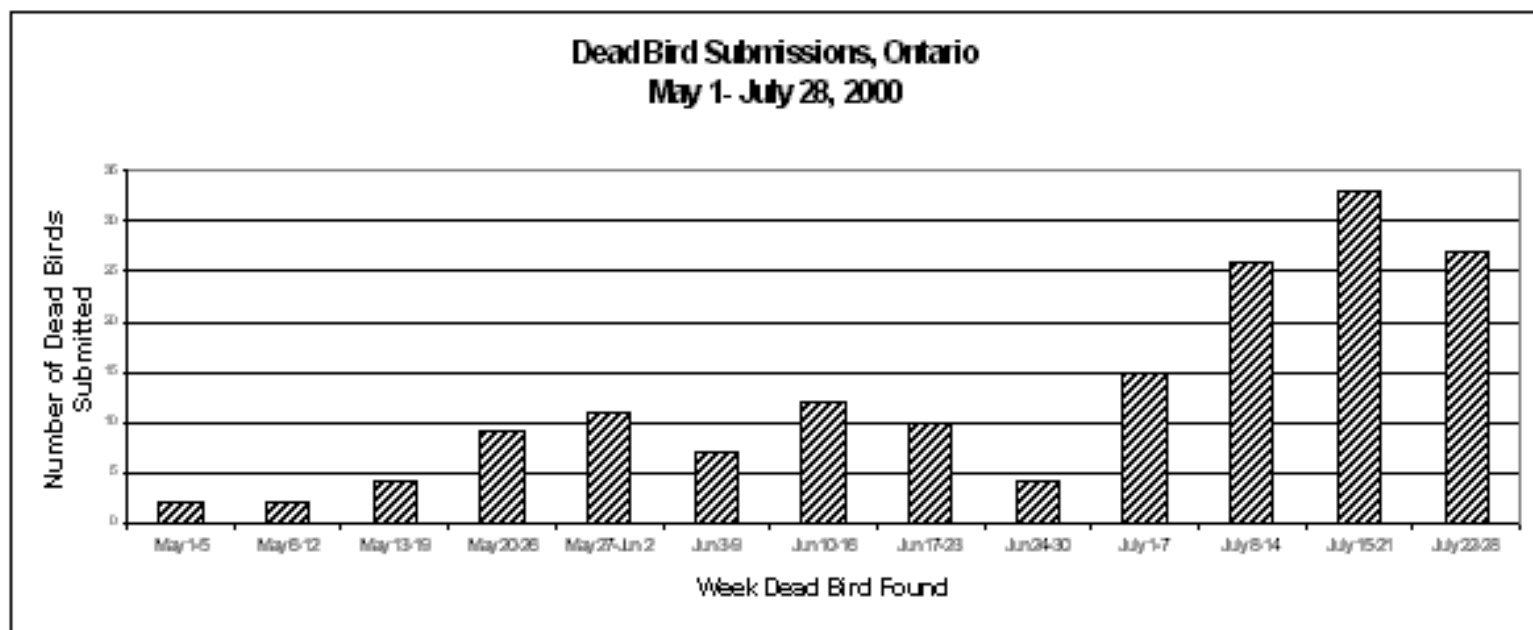
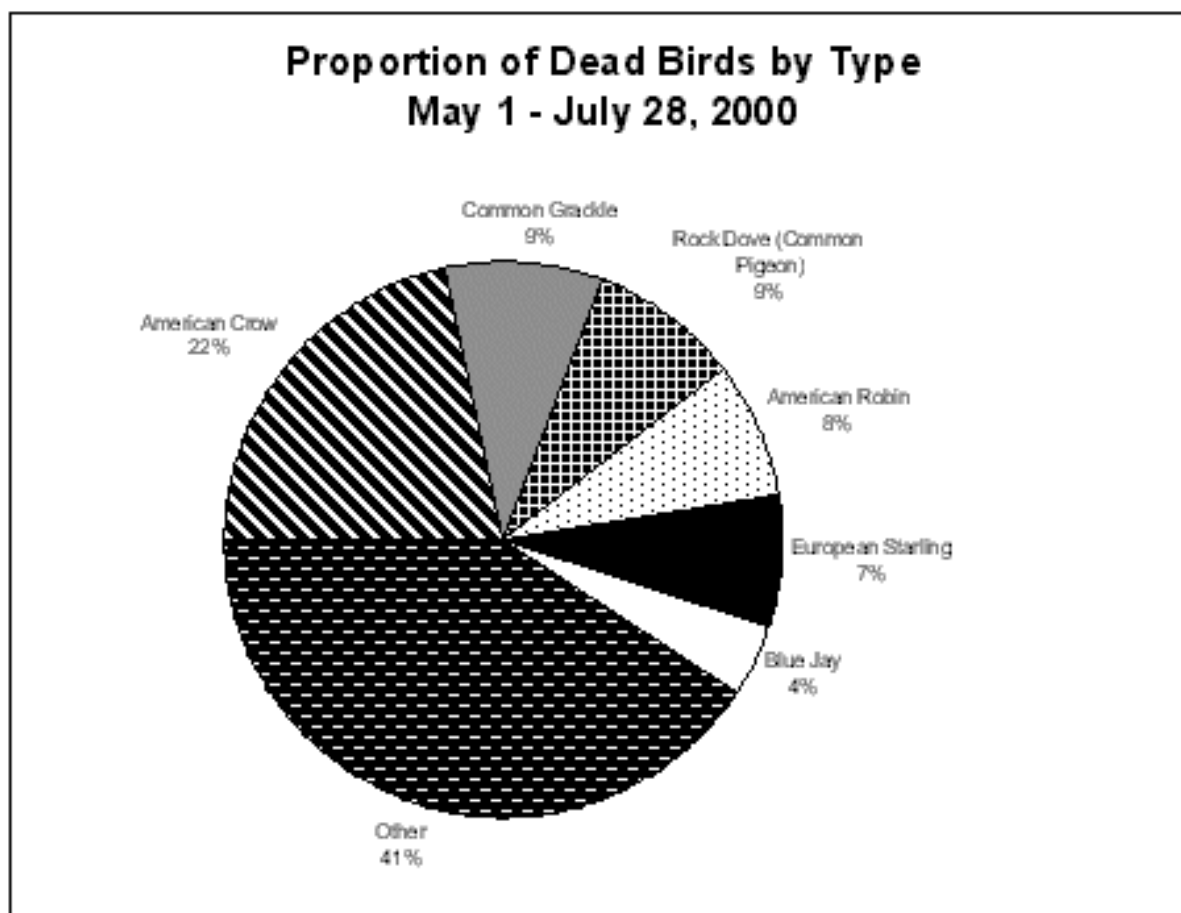


Figure 3



Other News

The risk of West Nile Virus infection for Ontario has increased with the discovery of positive dead birds in various areas in the State of New York

that are in close proximity to the province (i.e., Syracuse, Town of Tonawanda and Franklin County). With Niagara Region located adjacent to the Town of Tonawanda, it has consequently entered into stage 2 of the Ministry of Health's West Nile Virus Protocol. Niagara Region residents are being warned to protect themselves against mosquitoes and to report dead birds to the local health department for testing.

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Additional West Nile Virus Resources

Health Canada

<http://www.hc-sc.gc.ca/hpb/lcdc/bid/wnv/index.html>

Centers for Disease Control and Prevention, West Nile Virus, Links to City and State Web Sites

http://www.cdc.gov/ncidod/dvbid/westnile/city_states.htm

FOR MORE INFORMATION

Comments, questions and suggestions about surveillance results in this bulletin should be directed to :



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West Nile Virus Bulletin

Disease Control Service
Public Health Branch

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Summary of Ontario surveillance activities for the week ending July 14, 2000

Sentinel Chicken surveillance	All sites negative
Active Human surveillance	No cases detected
Mosquito counts	<i>Culex</i> species present-currently < 35% of female population at all sites
Dead Bird surveillance	102 specimens collected - no confirmed case of WNV

Summary of surveillance activities in other jurisdictions to date

Other Canada

No other jurisdictions in Canada have reported confirmed West Nile Virus in mosquitoes, birds, sentinel chickens or humans.

United States

As of August 8, 2000 1 human case of West Nile Virus has been confirmed in New York while birds have tested positive for West Nile Virus in 4 states, including New York, New Jersey, Massachusetts, and Connecticut. The human case was a 78 year old man, from the southern section of Staten Island. He first became ill on July 20th, and when the incubation of West Nile Virus in humans (5 to 15 days) is taken into account, then it would indicate that he was infected prior to the spraying on Staten Island on July 19th. The case was hospitalized with a diagnosis of viral meningo-encephalitis but was later released and is recovering at home. As of August 7, 128 birds have tested positive in New York State, involving 20 counties. West Nile Virus has spread north and northwest from the epicenter of last year's outbreak, and is now active throughout New York State. The counties across the Ontario border include Franklin, Niagara and Erie. The crow from Erie was found in the town of Tonawanda (immediately east of the Canada United States border and east of the Niagara health unit). As of August 7th, 53 crows have tested positive for West Nile Virus (29 in Bergen, 12 in Middlesex, 2 in Union, 2 in Hudson, 5 in Passaic, 2 in Monmouth and 1 in Essex Counties). Three birds have also tested positive in Massachusetts (north of NYC), specifically in Jamaica Plain, Hopkinton, and Boston City Park. Additionally, 1 crow in the Springdale region of Stamford, Connecticut (northeast of NYC) and one crow from the town of Columbia beyond the Fairfield and New Haven region, Connecticut have tested positive for West Nile Virus. In New York State, spraying is being conducted within a 2-mile radius in all areas with positive identification of West Nile Virus in birds.

West Nile Virus Surveillance in Ontario

This is the third issue of the Ontario West Nile Virus (WNV) Bulletin. This bulletin is intended to provide a summary of results of the various surveillance activities in Ontario, as well as update readers on surveillance findings elsewhere in Canada and the United States.

Sentinel Chicken Surveillance

Another successful week of Sentinel Chicken Surveillance was carried out. All eighteen sites located in the six potentially high-risk areas of Brockville (BR), Picton (PI), Guelph (GU), Niagara (NI), Long Point (LP) and Point Pelee (PP) were visited.

For the week ending July 14, 2000, blood samples were collected from all 18 sites in all six regions. However, at one site in the Picton region, only 9 of 10 samples were taken. No other difficulties in sampling of chickens have been noted. As of the week ending July 14, all sentinel chicken serums have tested negative for West Nile Virus. To date, no sentinel chickens in Ontario have tested positive for West Nile Virus.

Human Encephalitis Surveillance

In a mailing sent July 5th, selected specialty programs and all hospitals have been notified about the possibility of West Nile Virus infection in Ontario.

As of August 4, 2000, all 58 hospitals have agreed to participate in active human meningo-encephalitis surveillance. Eleven suspect cases have been reported from 9 sentinel hospital sites. Diagnostic specimens have included acute and convalescent sera and cerebrospinal fluid. None have been confirmed for West Nile Virus. Cases of meningo-encephalitis have included a 7 year old child from the London-Middlesex health unit region, a 29 year old individual from the Hamilton-Wentworth region, and a 42 year old case from the Ottawa-Carleton health unit region. Three cases, aged 34, 35 and 54 years, were reported from Peel region and one 43 year old case was reported from the Halton health unit region. Additionally, four cases (aged 2, 11, 32 and 45) were reported from the Toronto health unit region.

Mosquito Surveillance

Surveillance of the composition and abundance of local mosquito populations in 18 sites spread across six regions in Ontario has continued. For the week ending July 14, 2000 mosquitoes were collected from all 18 sites.

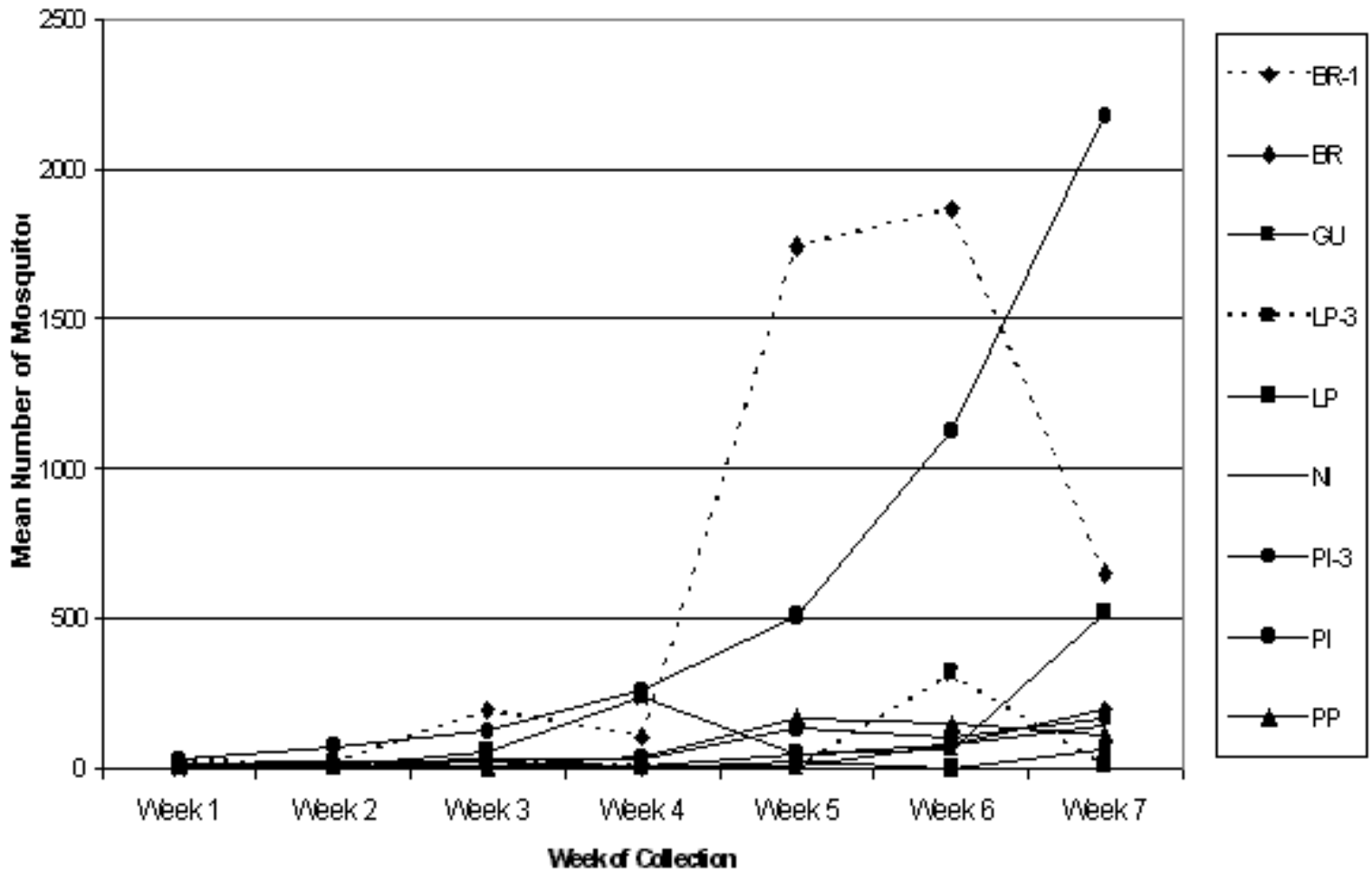
Analysis of variance of mean mosquito counts at each site within the 18 regions over the 7-week period indicated only one site in the Brockville region (BR1) having a significantly higher count of total mosquitoes compared to the other sites in the same region ($p=0.04$). In the last issue of the West Nile Virus Bulletin Vol. 1, Issue 2, this site in Brockville was reported as having higher, but not statistically significant, counts of mosquitoes than the other sites in the Brockville region. One site in Long Point (LP-3) and one in Picton (PI-3) maintained markedly higher counts of mosquitoes than the other sites within the same region, but these differences are not statistically significant ([see Figure 1](#)). There was an increase in total mosquito counts in 10 (55.6%) of the sites when compared to the previous week.

Total mosquito counts from the three sites of each of the six regions were pooled for further analysis. A summary of the first 7 weeks of collection is provided in the table below. The regions of Brockville, Niagara, Picton and Point Pelee reported a significant increasing trend of total mosquitoes over the 7 week period ($p= 0.04, 0.04, 0.01, 0.03$ respectively). No significant increasing trend in the proportion of females was reported in any of the 6 regions. Only Brockville had a significant increasing trend of the proportion of female mosquitoes that are *Culex pipiens* ($p= 0.01$). There were no other significant increases over the 7-week period in proportion of female mosquitoes that are of the genus *Aedes* in any of the six regions.

7 Week Summary				
SITE	Mean Number of Female Mosquitoes Mean (range)	Mean % of Mosquitoes Female	Mean % of Female Mosquitoes Culex pipiens	% of Female Mosquitoes Aedes
<i>Brockville</i>	746.1 (35-1985)	92.6	10.4	88.1
<i>Guelph</i>	399.1 (6-1552)	87.9	20.6	78.4
<i>Long Point</i>	71.4 (1-311)	81.6	34.1	59.5
<i>Niagara</i>	91.0 (8-366)	88.0	26.3	63.2
<i>Picton</i>	640.6 (35-1902)	85.9	21.5	77.0
<i>Point Pelee</i>	218.4 (19-476)	91.0	12.9	85.4

Figure 1

Mean Number of Mosquitoes per Site, June 2 - July 14, 2000



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Dead Bird Surveillance

Figure 2 shows the weekly submissions of dead bird carcasses to the week ending July 14, 2000. The figure indicates a marked increase in the number of submissions in the first 2 weeks of July, with 15 submissions in the first week and 26 in the second week. The weekly submissions of carcasses for the first 2 weeks of July are higher than any other previous week. Health unit participation in dead bird surveillance has increased. As of the week ending July 14, 18 (49%) health units have made a total of 36 submissions (each submission could involve multiple carcasses). This increase in health unit participation is important, since dead bird surveillance is a vital part of Ontario's efforts to detect any virus activity as early as possible.

As of July 14, 2000, 102 bird carcasses have been submitted for examination in Ontario. Initial autopsy indicated that 30 (29%) carcasses did not require further diagnosis, and 26 of these had a firm alternative diagnosis. Of the 102 carcasses submitted, 68 required further examination after autopsy. Histology results have indicated a firm alternative diagnosis in 18 of the 68 carcasses, with another 12 not requiring further testing since no indications of West Nile Virus lesions were present. Results on a further 26 carcasses are pending. To date histology results are available for 25 (48%) of the specimens requiring further examination. Thus far, no dead bird carcasses submitted in Ontario have been confirmed positive for West Nile Virus.

Figure 2

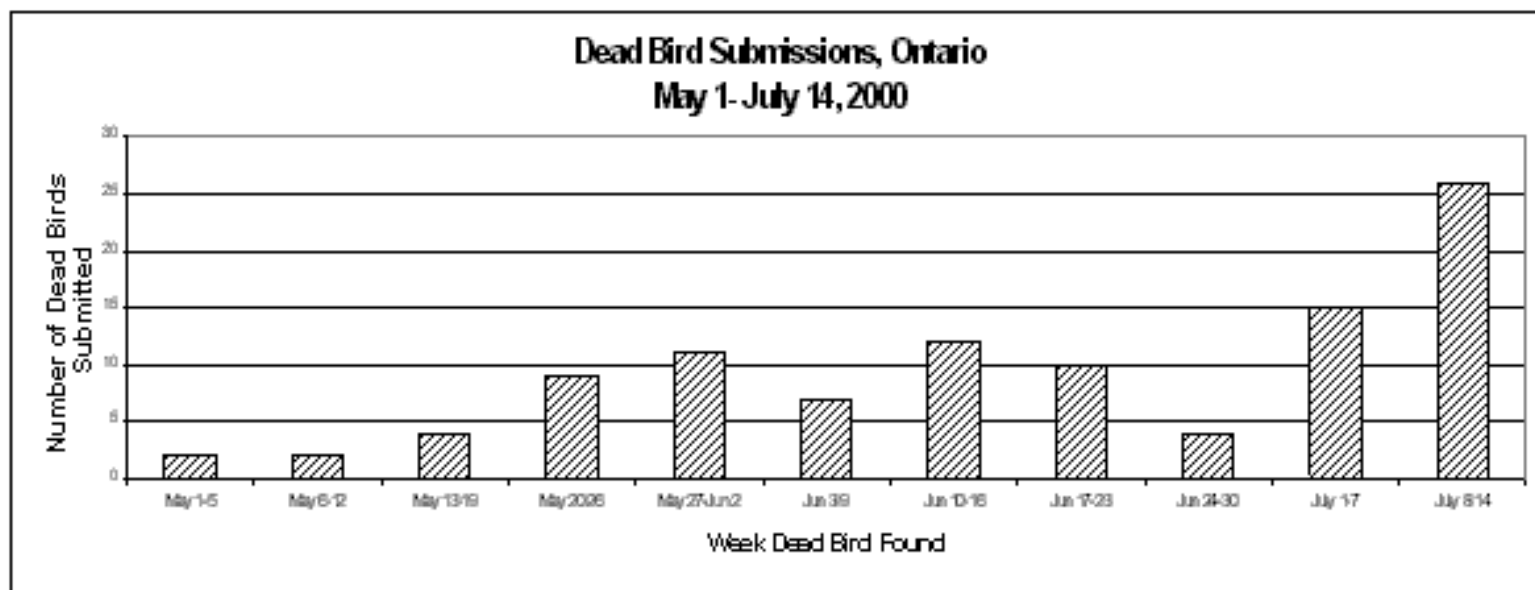
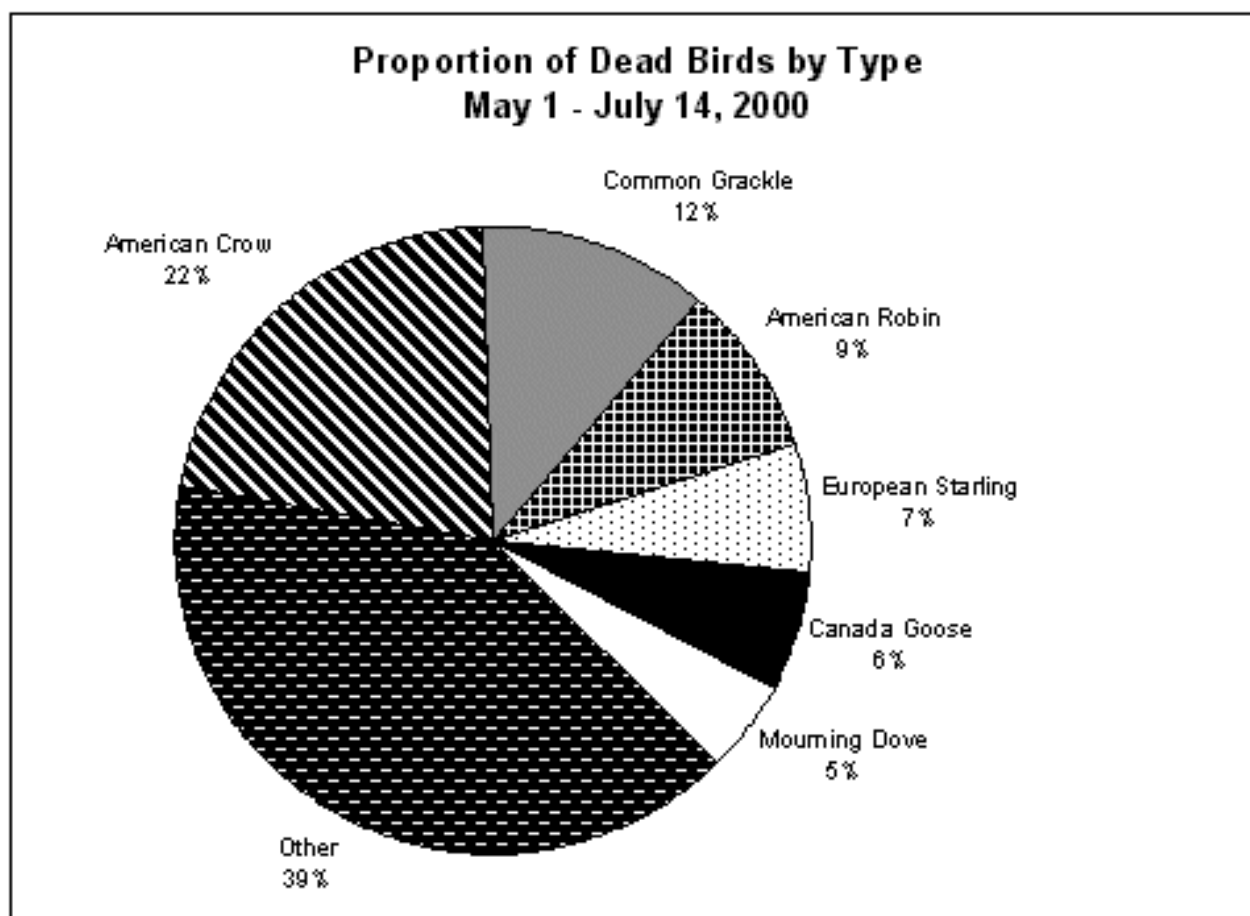


Figure 3



Other News

On July 27, 2000 Health Canada released a travel advisory for Canadians travelling to specified areas in the United States. These areas include New York City, specifically Queens and Richmond, and the surrounding counties in New York State including Orange, Rockland,

Suffolk, and Westchester. Fairfield County in Connecticut, Bergen, Hudson and Middlesex Counties in New Jersey and Suffolk County in Massachusetts were also specified as areas of potential exposure to West Nile Virus. A full copy of this advisory including precautionary measures may be obtained from the Health Canada web site (a direct link is provided below).

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Additional West Nile Virus Resources

Health Canada, West Nile Virus Travel Advisory- July 27, 2000

http://hwcweb.hwc.ca/hpb/lcdc/osh/wnv2000_e.html

New York City Department of Health, West Nile Virus Information

<http://www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html>

FOR MORE INFORMATION

Comments, questions and suggestions about surveillance results in this bulletin should be directed to :



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West Nile Virus Bulletin

Disease Control Service
Public Health Branch

Volume 1 / Issue 2 July 21, 2000



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Summary of Ontario surveillance activities for the week ending July 7, 2000

Sentinel Chicken surveillance	All sites negative
Active Human surveillance	No cases detected
Mosquito counts	<i>Culex</i> species present-currently < 33% of female population at all sites
Dead Bird surveillance	71 specimens collected - no confirmed case of WNV

Summary of surveillance activities in other jurisdictions to date

Other Canada

No other jurisdictions in Canada have reported confirmed West Nile Virus in mosquitoes, birds, sentinel chickens or humans.

United States

As of July 22, 2000 a total of 40 birds have tested positive for West Nile Virus in New York and New Jersey. Most recently, 7 crows in Bergen County, 2 crows in Hudson County and 2 crows in Middlesex County (west of NYC), 4 crows in Staten Island (NYC), 1 crow in Queens (NYC), 3 birds in Suffolk County (east of NYC), 4 birds in Westchester County (north of NYC) and 17 birds in Rockland County (northwest of NYC) have all tested positive for WNV. In both New York and New Jersey States, 31 crows, 6 blue jays, 2 red tailed hawks and 1 house sparrow tested positive for WNV. In addition, WNV has been confirmed in mosquitoes in the New York State counties of Orange, Suffolk and Westchester. Three of 1,800 mosquito pools were positive. Specifically, *Aedes japonicus* (Orange County) and *Culex pipiens* are the species affected in New York State. *A. japonicus* differs from *C. pipiens*, in that it feeds during the day and is found primarily in wooded areas. The species originated in Japan and Korea and survived in the NE USA in shipments of used tires and can now be found commonly in Connecticut, New Jersey and New York. Thus people in Orange County are also advised to take precautions during the day as well as during dusk to dawn. In Connecticut, *Culex restuans* was confirmed with WNV from mosquitoes collected on July 11. *C. restuans* is primarily a bird-biting mosquito. In response to the positive mosquito findings, ground spraying of adulticides from trucks equipped with Ultra Low Volume spray units is occurring in the City of Stamford, and the Towns of Darien and New Canaan, Connecticut. Spraying activities are restricted to a 2-mile radius from a positive mosquito finding. Ground spraying has occurred in Central Park and Staten Island, NYC and is scheduled for Westchester County and in Queens (NYC).

West Nile Virus Surveillance in Ontario

This is the second issue of the Ontario West Nile Virus (WNV) Bulletin. This bulletin is intended to provide a summary of results of the various surveillance activities in Ontario, as well as update readers on surveillance findings elsewhere in Canada and the United States.

Sentinel Chicken Surveillance

Another successful week of Sentinel Chicken Surveillance was carried out. All eighteen sites located in the six potentially high-risk areas of Brockville (BR), Picton (PI), Guelph (GU), Niagara (NI), Long Point (LP) and Point Pelee (PP) were visited.

For the week ending July 7, 2000, blood samples were collected from all 18 sites in all six regions. No further difficulties in transport of samples were reported. Laboratory analysis has been completed for all samples collected the week ending June 30th. No sentinel chickens in Ontario have tested positive for West Nile Virus.

Human Encephalitis Surveillance

Efforts to establish passive enhanced and active surveillance in Ontario have been proceeding. On July 5th a letter was sent to Ontario physicians in selected specialties (emergency medicine, critical care, infectious disease, medical microbiology, neurology) and public hospitals (chief executive officers and infection control practitioners) notifying them of the possibility of WNV in the province this season.

Enrollment of sentinel hospitals for the active human meningo-encephalitis surveillance system has been progressing well. As of July 13, 2000, 35 hospitals have agreed to participate. These hospitals have been sent binders providing detailed instructions on how to report cases of viral meningo-encephalitis cases, what samples are needed for testing and where they are to be sent along with background information on West Nile Virus. A total of 60 hospitals are targeted for enrolment into the active human surveillance system.

Mosquito Surveillance

Mosquito surveillance includes the monitoring of the composition and abundance of local mosquito populations in 18 sites spread across six regions in Ontario. It is important to remember that, the mosquito species *Culex pipiens* is the primary vector for West Nile Virus and only female mosquitoes bite and therefore have the potential to transmit the virus. For the week ending July 7, 2000 mosquitoes were collected from all 18 sites.

Analysis of variance over the six-week period of total mosquito counts between sites within each region indicated no significant differences in mosquito counts. However, one site in each of the Brockville (BR-1), Long Point (LP-3) and Picton (PI-3) regions showed markedly higher counts of mosquitoes than other sites within the same region ([see Figure 1](#)). The lack of statistical significance is likely due to the small number of samples available for analysis. As the mosquito season progresses these particular sites may warrant particular attention if the West Nile Virus is identified in Ontario. There was an increase in total mosquito counts in 10 (55.6%) of the sites when compared to the previous week. The total mosquito counts from the three sites of each of the six regions were pooled for further analysis.

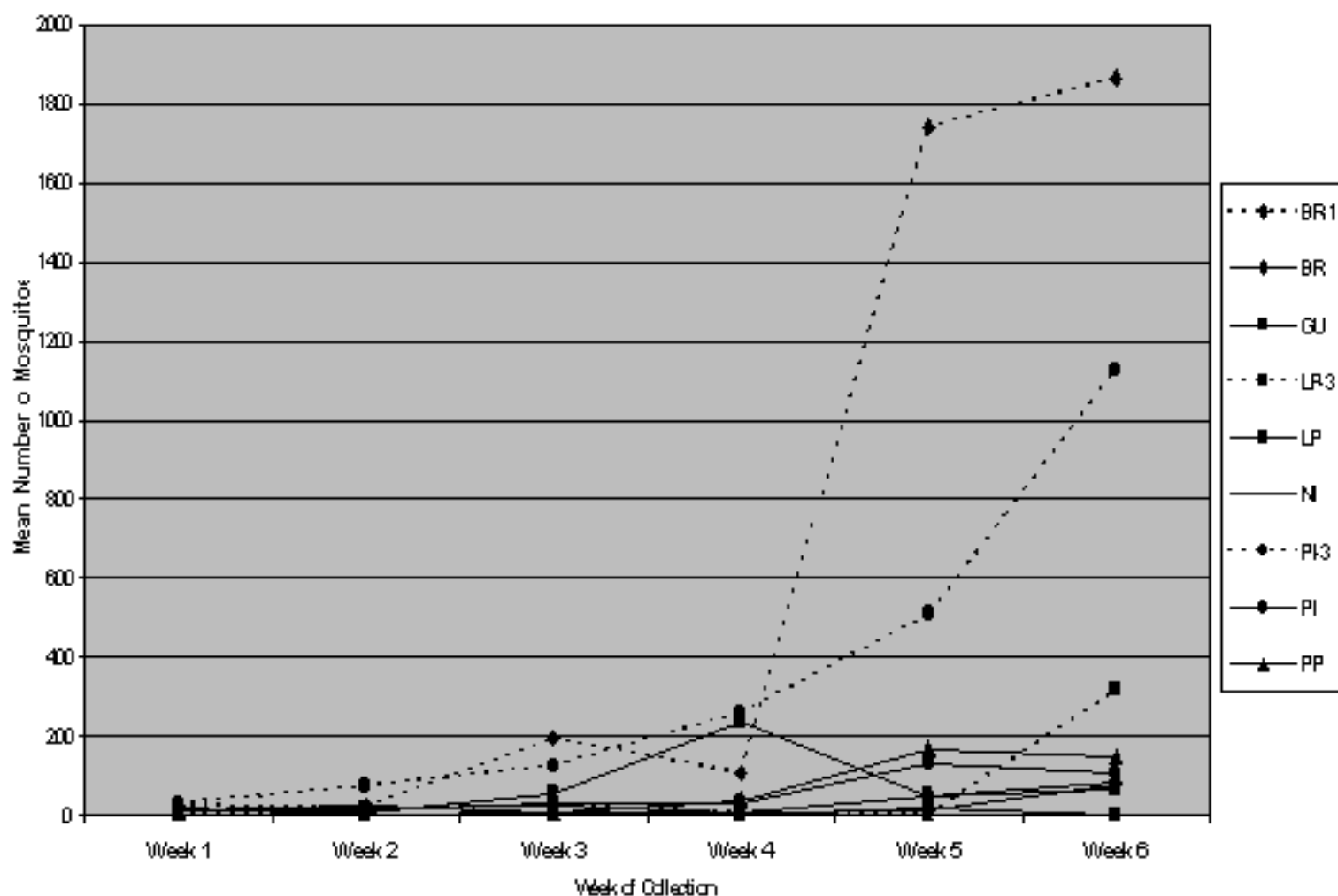
The table below provides a summary of findings during the first 6 weeks of collection. Regression analysis indicated that the Brockville and Picton regions had a significant increasing trend over the six week period ($p=0.03$, 0.01 respectively). However, the proportion of females did not show a significant increase over the 6-week collection period in any of the 6 regions. The data indicated that Brockville was the only region that indicated a significant increasing trend of the proportion of female mosquitoes that are *Culex pipiens* ($p=0.02$). There were no other significant increases over the 6-week period in either proportion of female mosquitoes or proportion of *Culex pipiens* species in any of the six sites.

Table 1

9 Week Summary				
SITE	Mean Number of Female Mosquitoes Mean (range)	Mean % of Mosquitoes Female	Mean % of Female Mosquitoes Culex pipiens	% of Female Mosquitoes Aedes
<i>Brockville</i>	703.7 (35-1985)	92.1	7.9	89.1
<i>Guelph</i>	207.0 (6-709)	86.0	21.7	77.3
<i>Long Point</i>	66.5 (1-311)	82.6	31.5	62.1
<i>Niagara</i>	45.2 (8-137)	88.9	26.4	63.1
<i>Picton</i>	430.3 (35-1232)	87.7	19.3	79.2
<i>Point Pelee</i>	199.5 (19-476)	90.0	10.2	88.0

Figure 1

Mean Number of Mosquitoes per Site, June 2 - July 7, 2000



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Dead Bird Surveillance

During the months of May, June, and the first week of July, 20, 40 and 11 dead bird carcasses were collected, respectively. [Figure 2](#) shows the weekly submissions of dead bird carcasses to the week ending July 7, 2000. The figure indicates a slight drop in number of submissions in the last two weeks of June, but the first week of July does show an increase. Health unit participation in dead bird surveillance to the week ending July 7, 2000 has resulted in 28 submissions (each submission could involve multiple carcasses) by 15 (40.5%) health units.

As of July 7, 2000, 71 bird carcasses have been submitted for examination. Of these 71, 29 (41%) carcasses were classified as not requiring further examination after initial post mortem, with 19 (90%) having a firm alternative diagnosis. For 42 (59%) of the carcasses, autopsy results indicated the need for further examination. To date histology results are available for 25 (48%) of the specimens requiring further examination. Histology results indicated that for 13 (52%) specimens, no further West Nile Virus testing was required because a conclusive alternative diagnosis was found. For 7 (28%) specimens, histology testing revealed no characteristic West Nile Virus lesions. As of July 7, 2000 there have been no confirmations of WNV in dead bird specimens collected in Ontario.

Figure 2

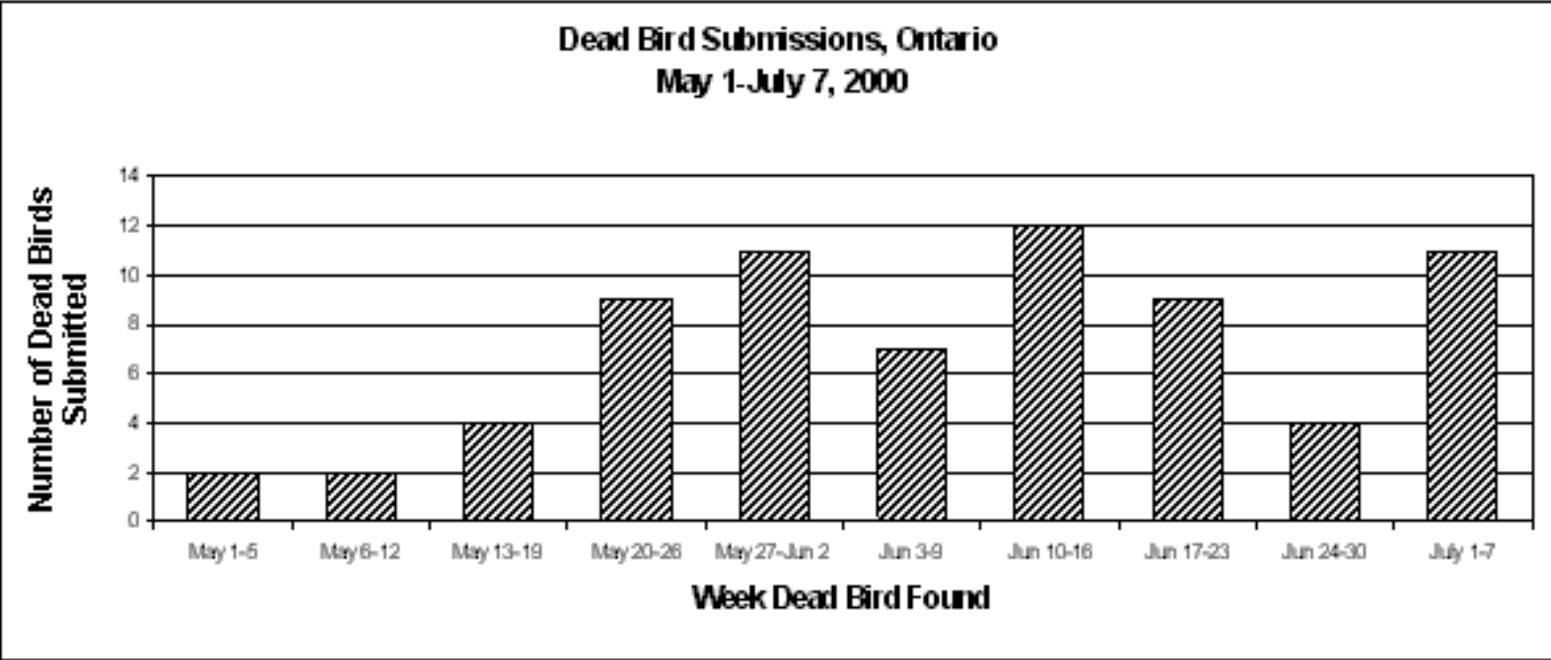
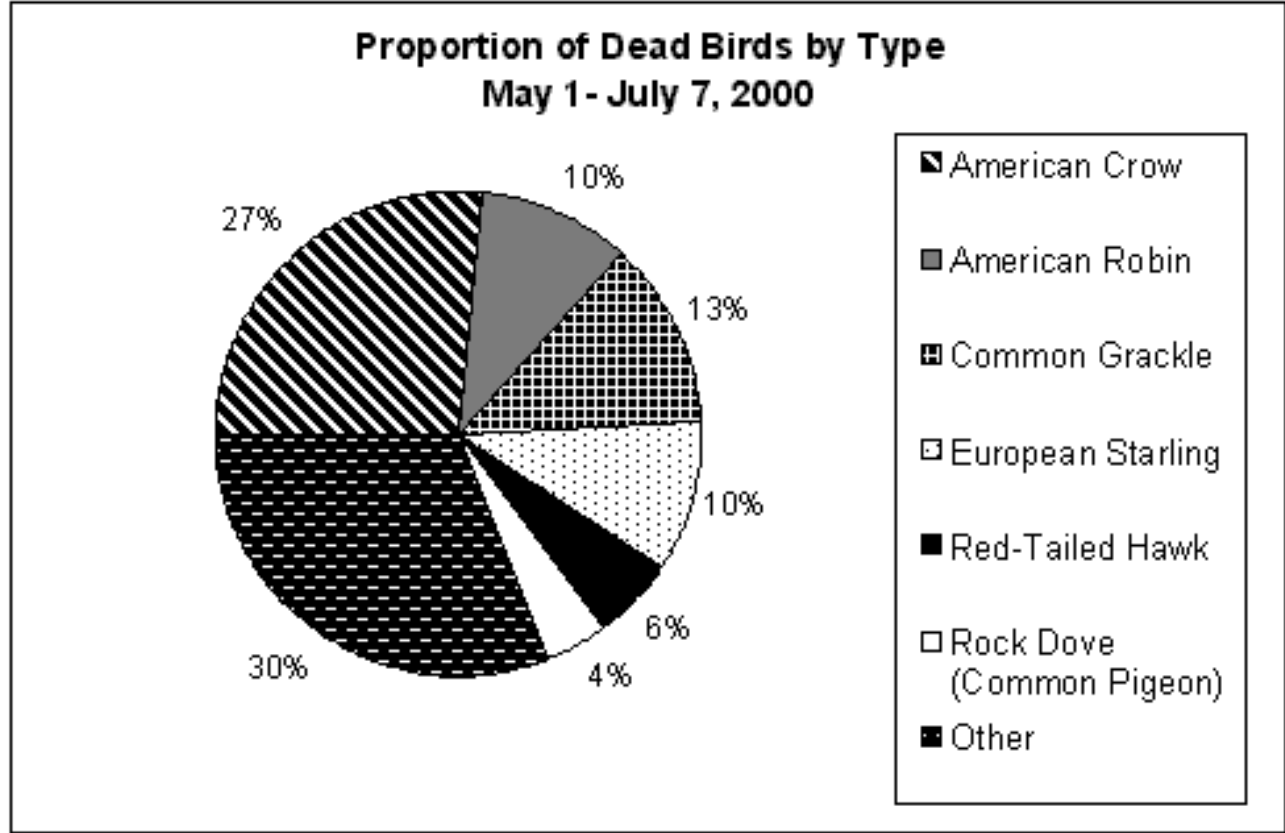


Figure 3



Other News

As of July 15, 2000 officials from the Centres for Disease Control and Prevention and other state and local agencies from New Jersey and New York will begin a study to determine the prevalence of West Nile Virus in wild birds. This study will involve all counties where WNV has been

identified this season and Queens, NY which was the epicenter for last year's outbreak. The study will involve enhanced mosquito and wild bird surveillance. The study will compare areas with identification of West Nile Virus with those areas that have not had any WNV positive results this season.

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Additional West Nile Virus Resources

Hubalek Z, Halouzka J. West Nile Fever-a reemerging mosquito-borne viral disease in Europe. Emerg Infect Dis. 1999 Sep-Oct; 5 (5): 643-50.

Health Canada

<http://www.hc-sc.gc.ca/hpb/lcdc/bid/wnv/index.html>

United States Geological Survey West Nile Virus Information

http://www.usgs.gov/west_nile_virus.html

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Summary of Ontario surveillance activities for the week ending June 30, 2000

Sentinel Chicken surveillance	All sites negative
Active Human surveillance	No cases detected
Mosquito counts	<i>Culex</i> species present-currently less than 25% of female population at all sites
Dead Bird surveillance	57 specimens collected - all negative for WNV

Summary of surveillance activities in other jurisdictions to date

Other Canada

No other jurisdictions in Canada have reported confirmed West Nile Virus in mosquitoes, birds, sentinel chickens or humans.

United States

As of June 29, four crows have tested positive for West Nile Virus in Bergen County, New Jersey (west of New York City). As of June 21, 3 crows and 1 blue jay were confirmed positive for West Nile Virus., in Rockland County, New York (north of New York City).

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West Nile Virus Surveillance in Ontario

This is the first issue of the Ontario West Nile Virus (WNV) Bulletin. This bulletin is intended to provide a summary of results of the various surveillance activities in Ontario, as well as update readers about results of surveillance elsewhere in Canada and the USA. It will be produced every two weeks (or more frequently following the occurrence of positive findings in or near Ontario) until the end of the surveillance season in late October 2000.

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Sentinel Chicken Surveillance

Sentinel chicken surveillance has been successfully implemented in Ontario and is fully operational. Eighteen chicken coops with 10 chickens each are located in six areas, selected based on the migratory patterns of birds. These areas are: Brockville, Picton, Guelph, Niagara, Long Point and Point Pelee. Weekly blood collection began the week of June 5th and has been completed to the week ending June 30th. Sampling has been complete in all but the Picton site, which submitted 47% of target samples due to problems with transport. Laboratory analysis has been completed to the week of collection ending June 23rd, and is negative by haemagglutination inhibition test.

Human Encephalitis Surveillance

Both passive enhanced and active surveillance is being established in Ontario. Enhanced passive surveillance: viral encephalitis and viral meningitis are reportable under Ontario Regulation 59/91 under the **Health Protection and Promotion Act**.

Ontario physicians in selected specialties (emergency medicine, critical care, infectious disease, medical microbiology, neurology) and public hospitals (chief executive officers and infection control practitioners) will soon be receiving a letter alerting them to the possibility of WNV in the province this season. They have been asked to consider this etiology in the differential diagnosis of meningo-encephalitis, especially in adults, and particularly if associated with profound muscle weakness. The mailing included recommendations for diagnostic specimen collection and submission to the Central Public Health Laboratory.

An active human meningo-encephalitis surveillance system has also been established the week of July 4th at 59 selected hospitals in Toronto-Peel, the university teaching hospitals and hospitals from 6 potentially high-risk areas in Ontario. Participating hospitals have been asked to report weekly all possible cases of West Nile Virus Encephalitis based on specific diagnostic guidelines. Results of surveillance will be reported in subsequent issues of this bulletin.

Mosquito Surveillance

Since WNV is transmitted by mosquitoes, mosquito surveillance is also being undertaken in Ontario. This will permit the monitoring of the composition and abundance of local mosquito populations and allow a better understanding of the risk of infections to humans. Light traps positioned in proximity to the sentinel chicken coops have been set up, and mosquitoes are collected weekly and transported to the University of Guelph for enumeration and speciation. The mosquito species *Culex pipiens* is the primary vector for West Nile Virus. Only female mosquitoes bite and therefore have the potential to transmit the virus, if present.

Collection of mosquitoes was initiated on the week ending June 2, 2000. During the first week of collection, only 14 (77%) mosquito traps were visited. In the subsequent four weeks, mosquitoes were collected from all 18 sites except during the week ending June 23, 2000 when mosquitoes were collected from 15 (83%) sites. An analysis of variance of total mosquito counts between sites within each of the 6 areas indicated no significant differences in mosquito counts except in one instance. One site in the Brockville area had a significantly higher number of total mosquitoes as compared to the other two sites in the Brockville area ($p < 0.05$). This difference was caused by a very high count of total mosquitoes in the final week of collection. It is possible that this was an outlier since counts from previous weeks do not exhibit a significant difference. Future collections at this site will provide more evidence to confirm if this was an atypical count. The total mosquito counts from the three sites of each of the six regions were pooled, since no other significant differences were present.

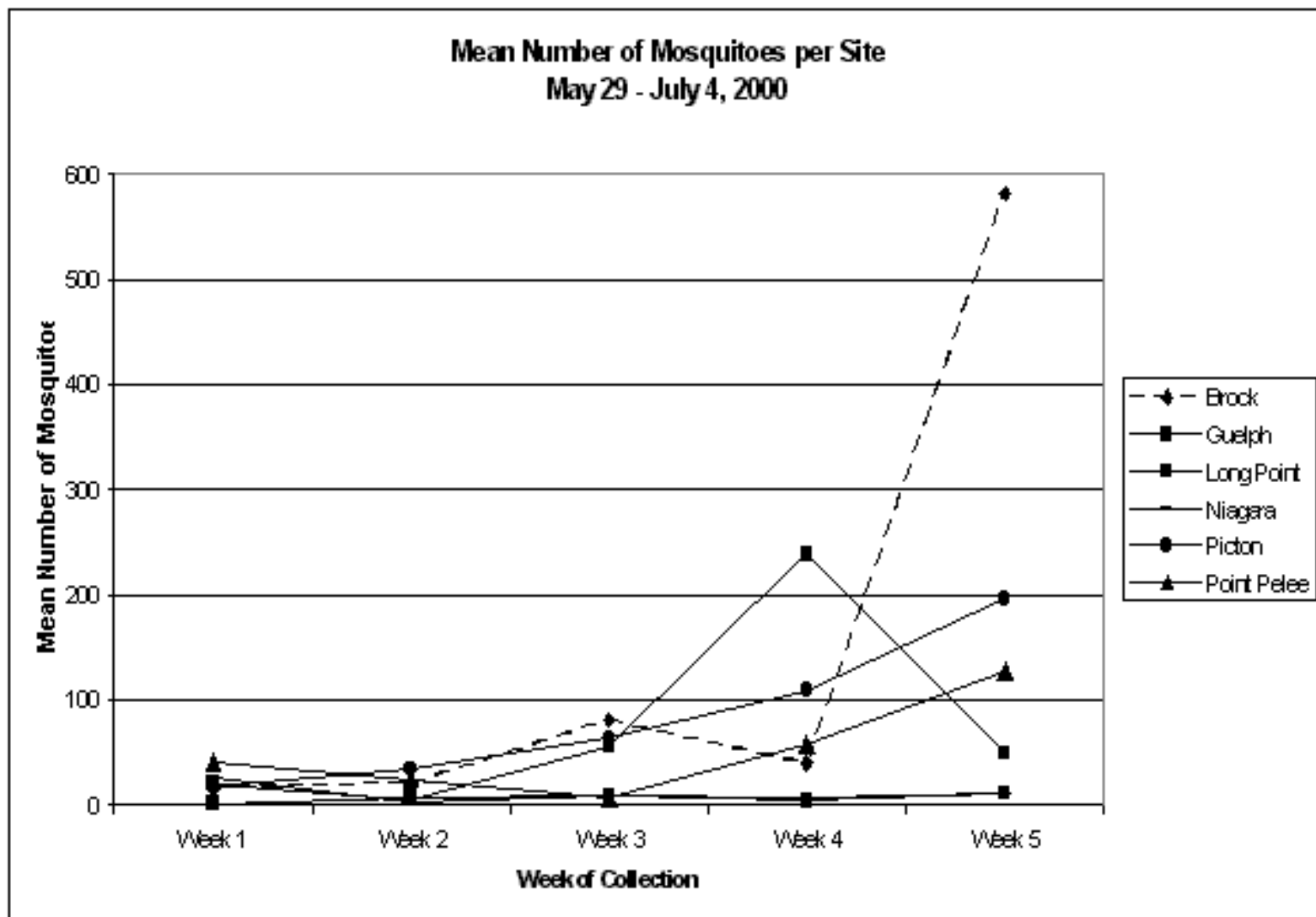
Figure 1 indicating the number of mosquitoes by week shows a general increasing trend in numbers of mosquitoes, which is to be expected as the season progresses. Although mosquitoes can breed year round, they are more common during the warmer seasons of summer and early fall. The figure below provides a summary of findings during the 5-week collection period. Regression analysis indicated that only the Picton area had a significant increase in number of female mosquitoes over the 5-week period ($p = 0.03$). There were no other significant increases over the 5-week period in either proportion of female mosquitoes or proportion of *Culex pipiens* species in any of the six sites.

Table 1

9 Week Summary				
SITE	Mean Number of Female Mosquitoes Mean (range)	Mean % of Mosquitoes Female	Mean % of Female Mosquitoes <i>Culex pipiens</i>	% of Female Mosquitoes <i>Aedes</i>
<i>Brockville</i>	432.0 (35-1721)	90.2	4.7	82.7

Guelph	210.0 (6-709)	83.8	17.5	74.1
Long Point	16.4 (1-39)	89.6	16.2*	50.6
Niagara	26.8 (8-48)	95.2	22.9	61.9
Picton	280.0 (35-785)	86.8	16.1	71.5
Point Pelee	161.4 (19-506)	89.1	8.24	63.8

Figure 1



Dead Bird Surveillance

Dead bird carcasses in Ontario have been collected and tested for WNV since May 1, 2000. During the months of May and June, 20 and 37 dead bird carcasses were collected respectively. [Figure 2](#) shows the weekly submission of dead bird carcasses for the first 2 months of enhanced passive dead bird surveillance, and suggests increasing submissions. An analysis of health unit participation to date indicates that for the months of May and June, 16 submissions (one submission could involve multiple birds) were made from 8 (22%) health units.

Of the 57 bird carcasses tested in May and June 2000, 35 (61%) carcasses were classified as requiring further examination after initial post mortem. For 16 (28%) of the carcasses, a firm alternative diagnosis was apparent and no further examination was required. Of the 35 carcasses requiring further examination, histology revealed a firm alternative diagnosis in 13 (37%) and 7 (20%) had no characteristic West Nile Virus lesions. To date, there have been no confirmations of WNV in bird specimens from Ontario

Figure 2

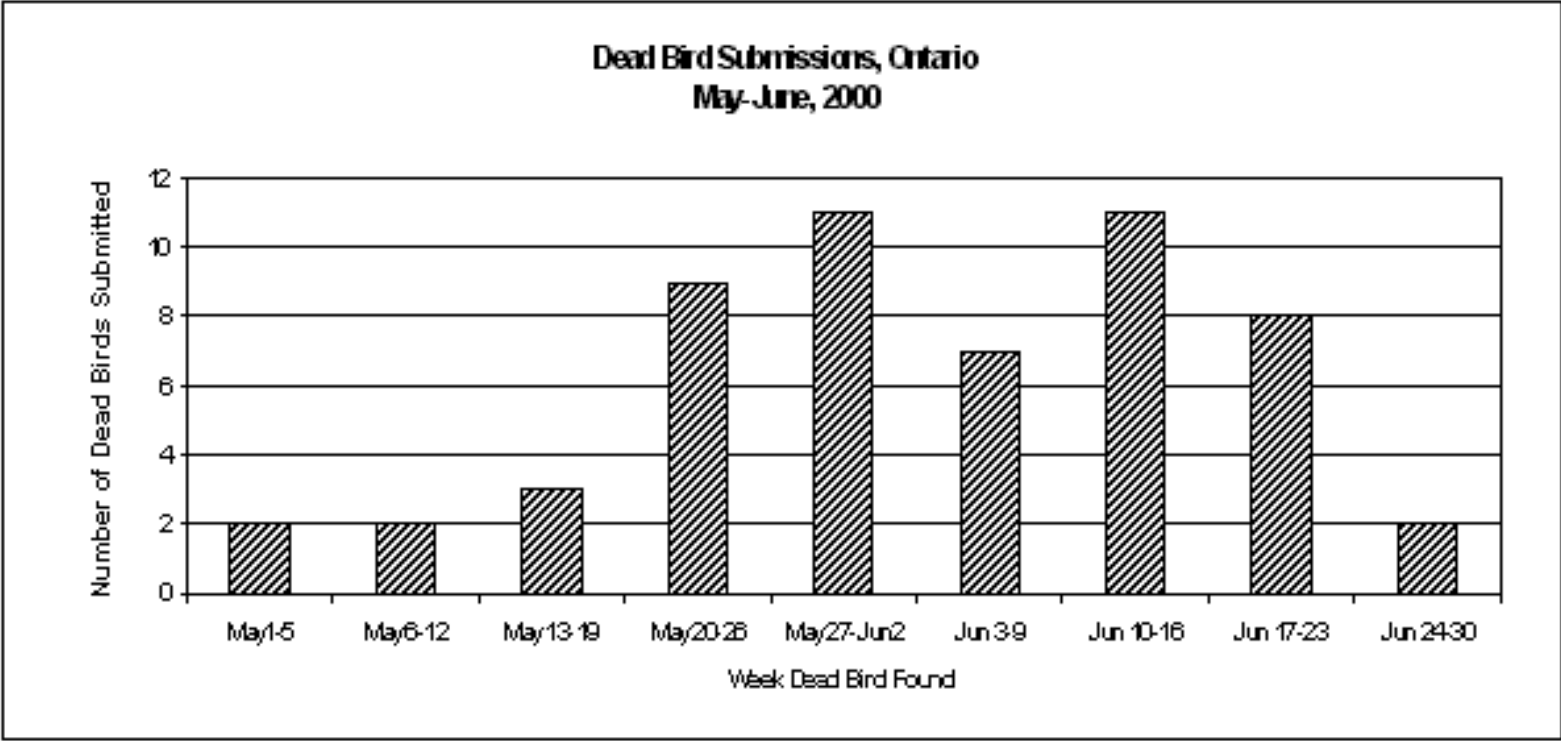
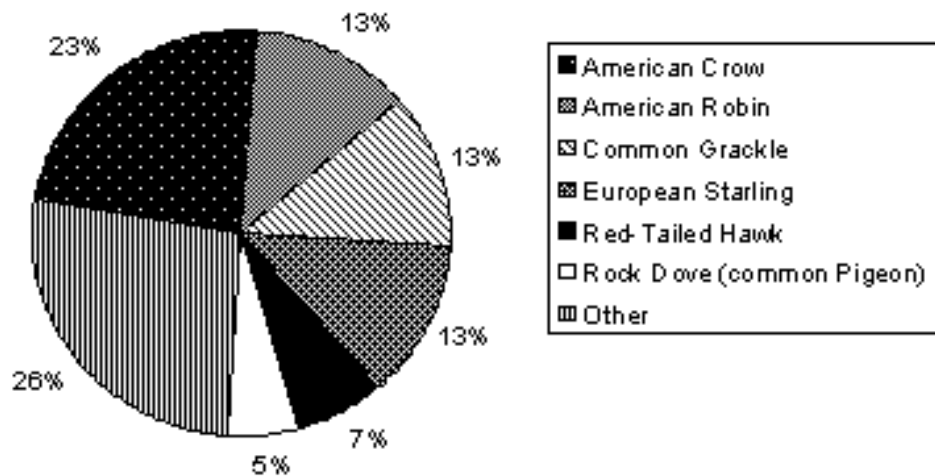


Figure 3

**Proportion of Dead Birds by Type
May-June 2000**



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Other News

Currently, the Ontario West Nile Virus Working Group is in the final stages of completing a comprehensive evidence based response plan. The theme of this plan is to provide an escalating response based on increasing risk. The plan will outline the prevention, response and control systems that will be implemented in Ontario, and describe the surveillance activities that are being undertaken.

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Additional West Nile Virus Resources

Sampson BA, Ambrosi C, Charlot A, Reiber K, Veress JF, Armbrustmacher V. The pathology of Human West Nile Virus Infection. Hum Pathol. 2000. May 31 (5):527-31.

Hubalek Z, Halouzka J. West Nile Fever-a reemerging mosquito-borne viral disease in Europe. Emerg Infect Dis. 1999 Sep-Oct; 5 (5): 643-50.

Health Canada

<http://www.hc-sc.gc.ca/hpb/lcdc/bid/wnv/index.html>

Centers for Disease Control and Prevention

<http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>

New York City Department of Health

<http://www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html>

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