

WEST NILE VIRUS AND OTHER MOSQUITO-BORNE DISEASE NATIONAL SURVEILLANCE REPORT

2014 - FINAL

WEST NILE VIRUS IN CANADA

HUMANS

During the 2014 West Nile virus season, three provinces (Manitoba, Ontario and Quebec) reported human cases of West Nile virus to the Public Health Agency of Canada. No fatalities were reported.

A total of 21 human clinical cases of West Nile virus were reported in Canada: five in Manitoba [Interlake-Eastern Health Region (1), Prairie Mountain Health Region (2)*, Southern Health Region (1) and Winnipeg Health Region (1)], 10 in Ontario [Chatham-Kent (1), Halton Region (2), Lambton County (1), City of Ottawa (2), Simcoe-Muskoka District (1) and City of Toronto (3)] and six in Quebec [Lanaudière (1), Montérégie (3) and Montreal (2)].

Of the 21 human clinical cases, 10 (47.6%) were classified as West Nile virus non-neurological syndrome, nine (42.9%) as West Nile virus neurological syndrome and two (9.5%) as unclassified/unspecified.

One asymptomatic infection was reported in Ontario: Windsor-Essex County.

* One of these cases was likely exposed prior to the 2014 West Nile virus season.

MOSQUITOES

A total of 219 mosquito pools tested positive for West Nile virus in Canada: 24 in Manitoba [Interlake-Eastern Health Region (7), Prairie Mountain Health Region (1), Southern Health Region (11) and Winnipeg Health Region (5)]; 56 in Ontario [Haliburton-Kawartha-Pine Ridge District (1), Halton Regional (3), City of Hamilton (7), Lambton (1), Middlesex-London (4), Niagara

Regional (2), City of Ottawa (3), Peel Regional (22), City of Toronto (10), Windsor-Essex County (1) and York Regional (2)]; 119 in Quebec [Laval (13), Montérégie (42) and Montreal (64)] and 20 in Saskatchewan [Sun Country, Regina Qu'Appelle, Five Hills, Cypress, Heartland Health Regions].

DEAD BIRDS

The [Canadian Wildlife Health Cooperative](#) tested a total of 130 dead birds for West Nile virus in Canada: Manitoba (1), Northwest Territories (1), Ontario (31), Quebec (26) and Saskatchewan (71).

Of these, 18 (13.8%) dead birds tested positive for West Nile virus in Canada: Ontario (6), Quebec (10) and Saskatchewan (2).

DOMESTIC ANIMALS

The [Canadian Food Inspection Agency](#) reported a total of 21 horses tested positive for West Nile virus in Canada: Alberta (7), Manitoba (1), Ontario (1), Quebec (4) and Saskatchewan (8).

WEST NILE VIRUS HUMAN DISEASE CASES IN THE UNITED STATES

As of January 13, 2015, the [Centers for Disease Control and Prevention \(CDC\)](#) reported 2,122 West Nile virus human disease cases:

Alabama (2), Arizona (104), Arkansas (11), California (787), Colorado (114), Connecticut (6), District of Columbia (3), Florida (16), Georgia (12), Idaho (18), Illinois (40), Indiana (9), Iowa (15), Kansas (51), Kentucky (1), Louisiana (111), Maryland (6),

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Massachusetts (6), Michigan (1), Minnesota (21), Mississippi (43), Missouri (13), Montana (5), Nebraska (140), Nevada (3), New Jersey (7), New Mexico (24), New York (22), North Dakota (22), Ohio (11), Oklahoma (18), Oregon (8), Pennsylvania (12), South Carolina (2), South Dakota (57), Tennessee (15), Texas (353), Utah (2), Virginia (7), Washington (12), Wisconsin (7) and Wyoming (5).

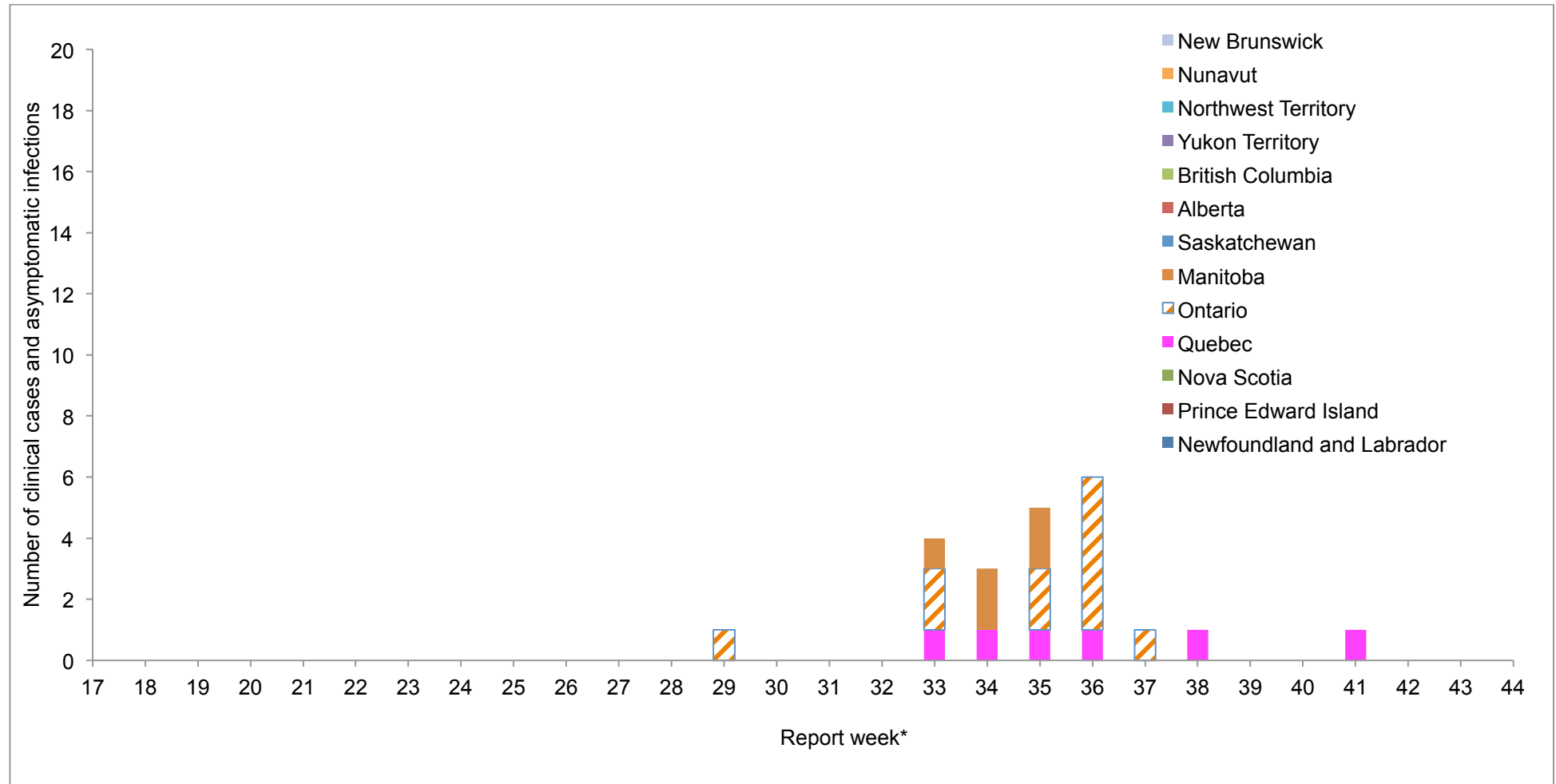
Of these, 1,283 (60.5%) were diagnosed as neuroinvasive disease cases and 839 (39.5%) as non-neuroinvasive disease cases. Eighty-five fatal cases were reported. Three hundred and thirty-seven presumptive viremic blood donors have been identified.

WEST NILE FEVER IN THE EUROPEAN UNION, EUROPEAN ECONOMIC AREA AND NEIGHBOURING COUNTRIES

As of November 20, 2014, the [European Centre for Disease Prevention and Control \(ECDC\)](#) reported a total of 74 human cases of West Nile fever in Europe: Austria (1), Greece (15), Hungary (11), Italy (24) and Romania (23).

In the neighbouring countries and regions, a total of 136 human cases have been reported: Bosnia and Herzegovina (13), Gaza (1), Israel (17), Russian Federation (29) and Serbia (76).

FIGURE 1: West Nile Virus clinical cases and asymptomatic infections, by Province/Territory and report week, 2014 season



* West Nile virus clinical cases and asymptomatic infections are grouped by report week, based on episode date. Episode date could include one of the following: onset date, diagnosis date, lab sample date or reporting date.

TABLE 1: West Nile Virus clinical cases and asymptomatic infections, by Province/Territory and report week, 2014 season

	Report week of 2014																											
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Newfoundland and Labrador	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prince Edward Island	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	0	1	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	2	5	1	0	0	0	0	0	0	0
Manitoba	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1**	2	2	0	0	0	0	0	0	0	0	0
Saskatchewan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alberta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
British Columbia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yukon Territory	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northwest Territory	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nunavut	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4*	3	5	6	1	1	0	0	1	0	0	0

* One of these cases was likely exposed prior to the 2014 West Nile virus season.

** This case was likely exposed prior to the 2014 West Nile virus season.

TABLE 2: West Nile Virus human clinical cases and asymptomatic infections by Province/Territory, 2014 season

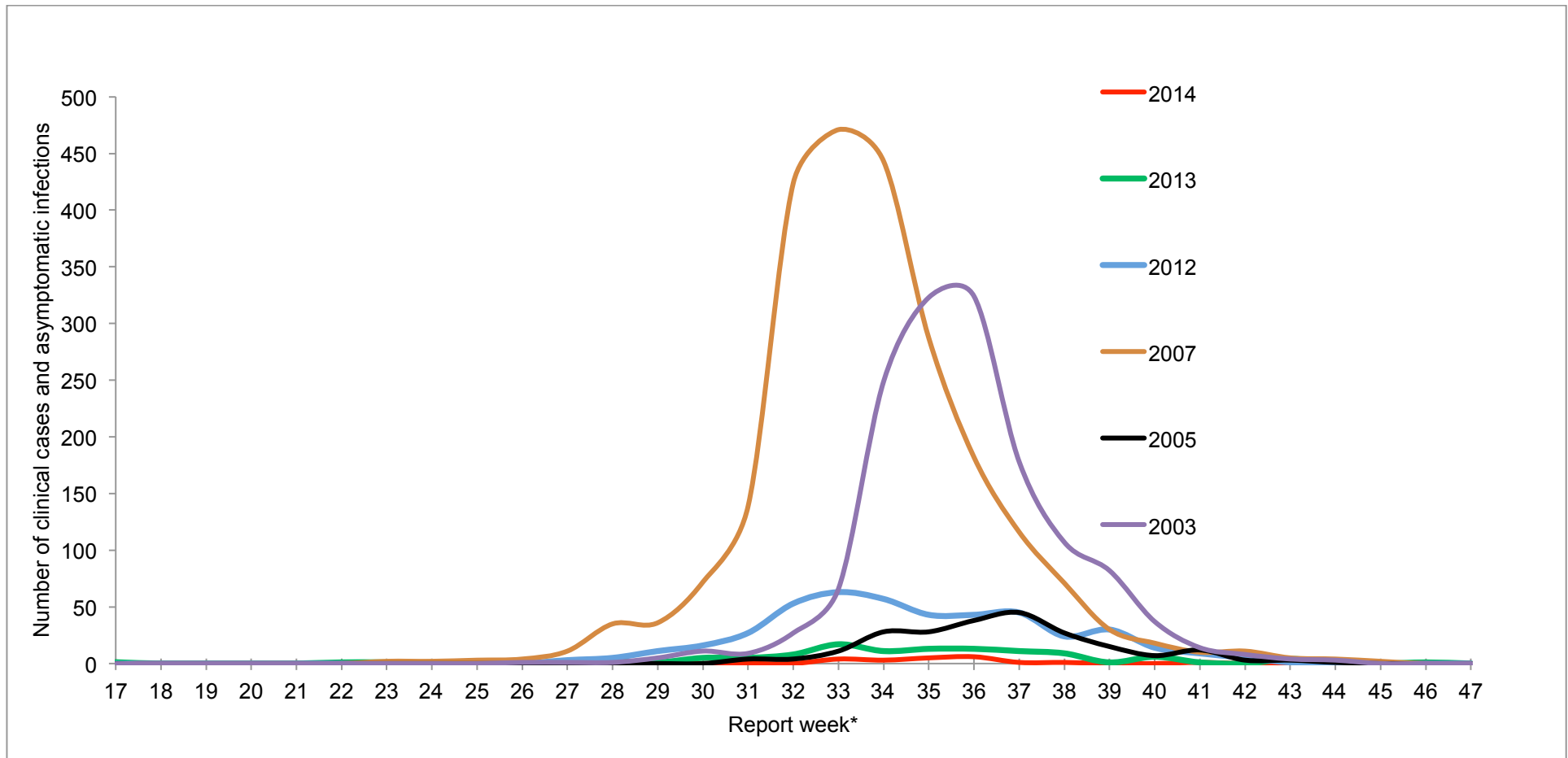
	Year to date: January 1 to November 1, 2014					
	West Nile virus neurological syndrome	West Nile virus non-neurological syndrome	Unclassified/unspecified	Total clinical cases ¹	Number of travel-related cases ²	West Nile virus asymptomatic infection ³
Newfoundland and Labrador	0	0	0	0	0	0
Prince Edward Island	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0
Quebec	5	1	0	6	0	0
Ontario	3	5	2	10	2	1
Manitoba	1	4*	0	5*	0	0
Saskatchewan	0	0	0	0	0	0
Alberta	0	0	0	0	0	0
British Columbia	0	0	0	0	0	0
Yukon Territory	0	0	0	0	0	0
Northwest Territory	0	0	0	0	0	0
Nunavut	0	0	0	0	0	0
Total	9	10*	2	21*	2	1

¹ Total clinical cases is the sum of both probable and confirmed: West Nile virus neurological and non-neurological syndromes, along with any unclassified or unspecified cases.

² Likely related to travel outside the Province/Territory. These cases are included in either the total clinical cases or West Nile virus asymptomatic infections.

³ Satisfies West Nile virus diagnostic test criteria in the absence of clinical criteria. This category could include asymptomatic blood donors whose blood is screened using a nucleic acid amplification test, by blood operators (i.e. Canadian Blood Services or Hema-Quebec) and is subsequently brought to the attention of public health officials. Blood operators in Canada perform a supplementary West Nile virus specific nucleic acid amplification test following any positive donor screen test result.

* One of these cases was likely exposed prior to the 2014 West Nile virus season.

FIGURE 2: West Nile Virus clinical cases and asymptomatic infections by report week for selected years

* West Nile virus clinical cases and asymptomatic infections are grouped by report week, based on episode date. Episode date could include one of the following: onset date, diagnosis date, lab sample date or reporting date.

TABLE 3: West Nile Virus clinical cases and asymptomatic infections by report week for selected years

	Report week																																
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47		
2014	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4*	3	5	6	1	1	0	0	1	0	0	0	-	-	-		
2013	1	0	0	0	0	1	1	0	0	0	1	2	1	5	5	8	17	11	13	13	11	9	1	6	1	0	4	1	0	1	0		
2012	1	0	0	0	0	0	0	0	0	0	3	5	11	16	27	53	63	57	43	43	45	24	30	14	9	5	1	0	0	0	0		
2007	0	0	0	0	0	0	2	2	3	4	11	35	36	72	139	424	471	443	287	182	116	71	30	18	10	11	5	4	2	0	0		
2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	11	28	28	38	45	27	15	7	12	3	3	1	0	0	0		
2003	0	0	0	0	0	0	0	0	0	1	1	1	5	11	9	27	66	249	323	324	178	107	82	37	14	8	4	3	0	0	0		

* One of these cases was likely exposed prior to the 2014 West Nile virus season.

TABLE 4.1: Reported cumulative number of West Nile Virus positive mosquito pools, by Province/Territory and report week, 2014 season*

	Report week of 2014																											
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Newfoundland and Labrador	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prince Edward Island	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0	0	1	4	9	10	19	19**	39	70	99	112	119	119	119	119	119	119
Ontario	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	9	11	13	30	43	52	56	56	56	56	56	56	56
Manitoba	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7	14	19	22	24	24	24	24	24	24	24	24	24
Saskatchewan	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	9	19	20	20	20	20	20	20	20	20	20	20
Alberta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
British Columbia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yukon Territory	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northwest Territory	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nunavut	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	7	22	28	53	70	111	157	195	212	219	219	219	219	219	219

* Detailed West Nile virus mosquito surveillance data can be accessed through [Provincial/Territorial websites](#).

** Week 34 data was not available at the time of publication.

TABLE 4.2: Number of mosquito pools tested and number of positive mosquito pools, by Province/Territory, 2014 season

	Year to date: January 1 to November 1, 2014		
	Number of positive mosquito pools	Number of mosquito pools tested	Percentage of positive mosquito pools (%)
Quebec	119	11,413	1.0
Ontario	56	14,116	0.4
Manitoba	24	1,505	1.6
Saskatchewan	20	824	2.4
British Columbia	0	236	0
Total	219	28,094	0.8

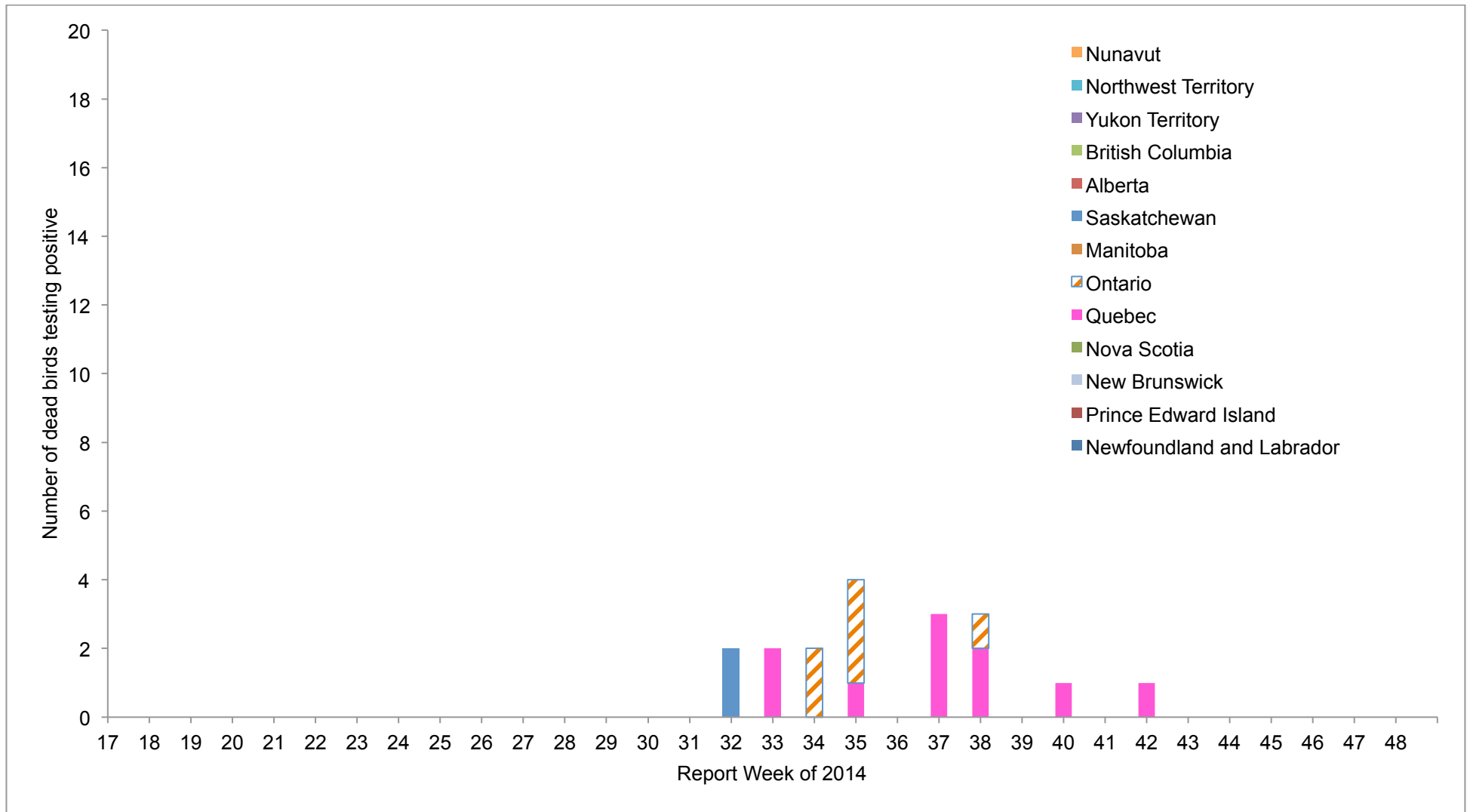
FIGURE 3: Reported number of dead birds testing positive for West Nile Virus, by Province/Territory and report week, 2014 season** Data from the [Canadian Wildlife Health Cooperative](#).

TABLE 5: Reported number of dead birds testing positive for West Nile Virus, by Province/Territory and report week, 2014 season*

	Report week of 2014																																			
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Total			
Newfoundland and Labrador	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Prince Edward Island	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
New Brunswick	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Quebec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3	2	0	1	0	1	0	0	0	0	0	0	10			
Ontario	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	1	0	0	0	0	0	0	0	0	0	0	6			
Manitoba	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Saskatchewan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2			
Alberta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
British Columbia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Yukon Territory	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Northwest Territory	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Nunavut	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	4	0	3	3	0	1	0	1	0	0	0	0	0	0	18			

* Data from the [Canadian Wildlife Health Cooperative](#).

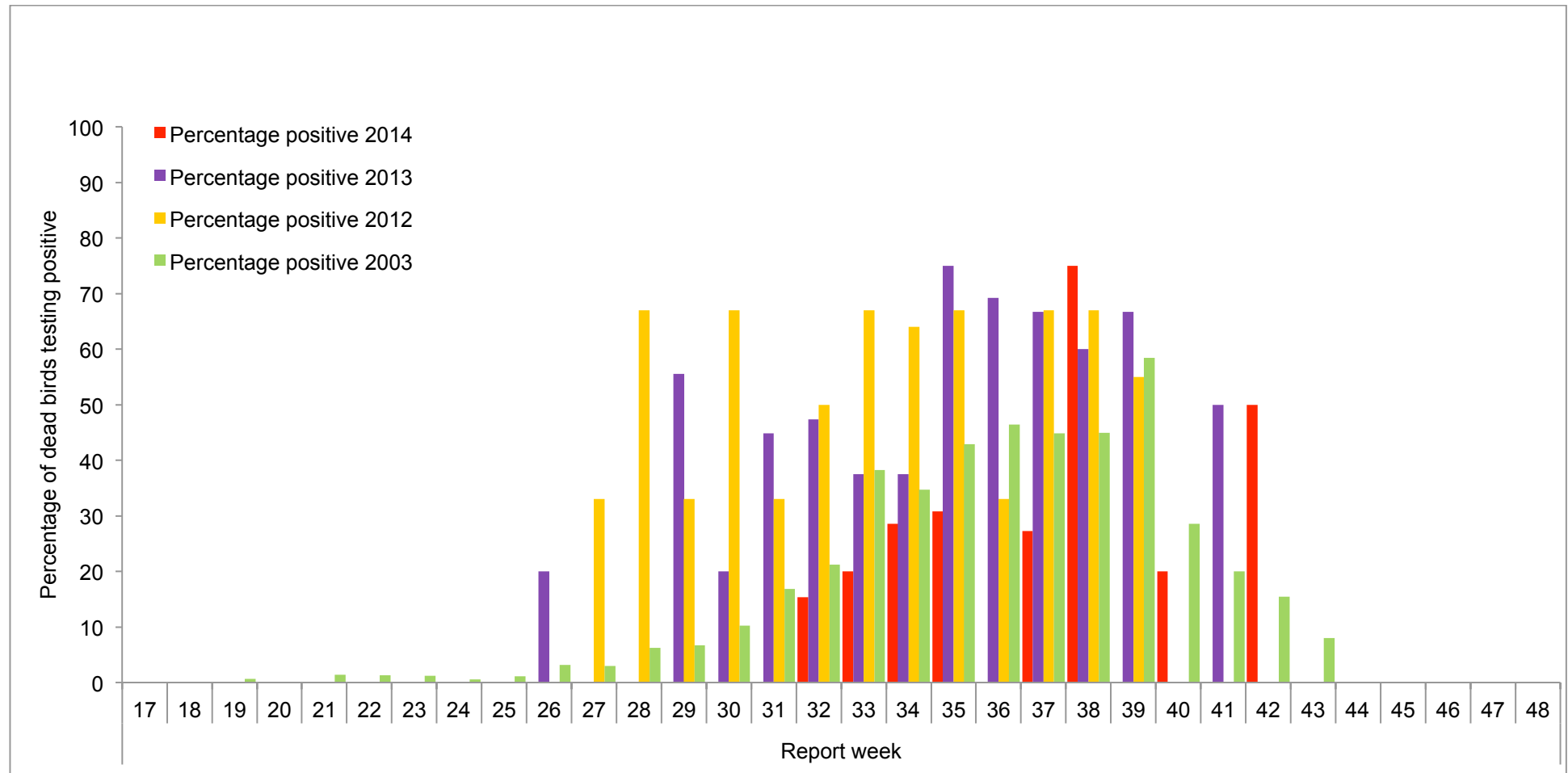
FIGURE 4: Percentage of dead birds testing positive for West Nile Virus in the 2014 season by report week, as compared to the 2003, 2012 and 2013 seasons

TABLE 6: Percentage of dead birds testing positive for West Nile Virus in the 2014 season by report week, as compared to the 2003, 2012 and 2013 seasons

		Report week																																															
		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48																
Numbers positive	2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	4	0	3	3	0	1	0	1	0	0	0	0	0	0	0															
Numbers tested	2014	0	0	0	0	0	0	0	0	0	0	0	0	0	43*	10	13	10	7	13	6	11	4	1	5	3	2	0	0	1	0	0	1																
Percentage positive	2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	20	29	31	0	27	75	0	20	0	50	0	0	0	0	0	0																
Numbers positive	2013	0	0	0	0	0	0	0	0	0	1	0	0	5	2	13	9	6	6	18	9	6	6	2	0	1	0	0	0	0	0	0	0																
Numbers tested	2013	0	0	0	1	0	0	0	2	2	5	8	5	9	10	29	19	16	16	24	13	9	10	3	3	2	0	0	0	0	0	0	0																
Percentage positive	2013	0	0	0	0	0	0	0	0	0	20	0	0	56	20	45	47	38	38	75	69	67	60	67	0	50	0	0	0	0	0	0	0																
Percentage positive	2012	0	0	0	0	0	0	0	0	0	0	33	67	33	67	33	50	67	64	67	33	67	67	55	0	0	0	0	0	0	0	0	0																
Percentage positive	2003	0	0	1	0	1	1	1	1	1	3	3	6	7	10	17	21	38	35	43	46	45	45	58	29	20	15	8	0	0	0	0	0																

* Data became available during Week 30; this is a cumulative number of dead birds tested from Week 1 to Week 30.

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2014 - FINAL

EASTERN EQUINE ENCEPHALITIS IN CANADA

DOMESTIC ANIMALS

The [Canadian Food Inspection Agency](#) reported a total of 28 cases of Eastern Equine Encephalitis in Canada: Nova Scotia (1), [Ontario](#) (25) and [Quebec](#) (2).

Of these, 27 cases (96.4%) were reported in horses and one (3.6%) case was reported in an emu in Ontario.

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