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## West Nile Virus National Report on Dead Bird Surveillance, Canadian Cooperative Wildlife Health Centre

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CCWHC HQ

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West Nile Virus National Report on Dead Bird Surveillance  
Canadian Cooperative Wildlife Health Centre  
December 21, 2005



The following is a synthesis of data collected in the National WNV dead bird surveillance program in 2005. As such it reflects the activities of a range of jurisdictions and agencies, including Federal/Provincial/Territorial Health, Wildlife and Agriculture Departments and the Canadian Cooperative Wildlife Health Centre. All of the data used was compiled using the CCWHC database; minor discrepancies from other reports or websites are possible.

Prepared by Patrick Zimmer – CCWHC HQ

# Year at a Glance

**Official Start Dates:** Surveillance began at different times in different jurisdictions. Some programs began testing as early as May 2, all jurisdictions were testing by the beginning of June.

**Official end of testing:** Due to differing program closing dates, the ability to make valid comparisons from previous years was significantly reduced as the season progressed. Some jurisdictions discontinued testing as early as the end of July, others by August 31 and still others in September and October.

Please note that the term “Positive” denotes a positive result using the MAS VecTest (ELISA) test and, depending on jurisdiction, confirmation via RT-PCR. At this time there is no standardized protocol for the reporting of WNV positive results for all jurisdictions across the country. However, all jurisdictions do perform confirmatory testing on a limited scale based on individual criteria, which may include confirmation of the first “x” number of VecTest positives for the season, first VecTest Positive for a geographic area, etc.

**First Positive Bird:** Week 20 (May 17) - Ontario  
**Last Positive Bird:** Week 39 (September 28) - Ontario  
**Total birds received:** 4151  
**Total birds tested:** 3991  
**Total birds Positive:** 447 (AB – 6, MB – 12, ON – 300, QC – 115, SK -14)  
**Total Birds negative:** 3541

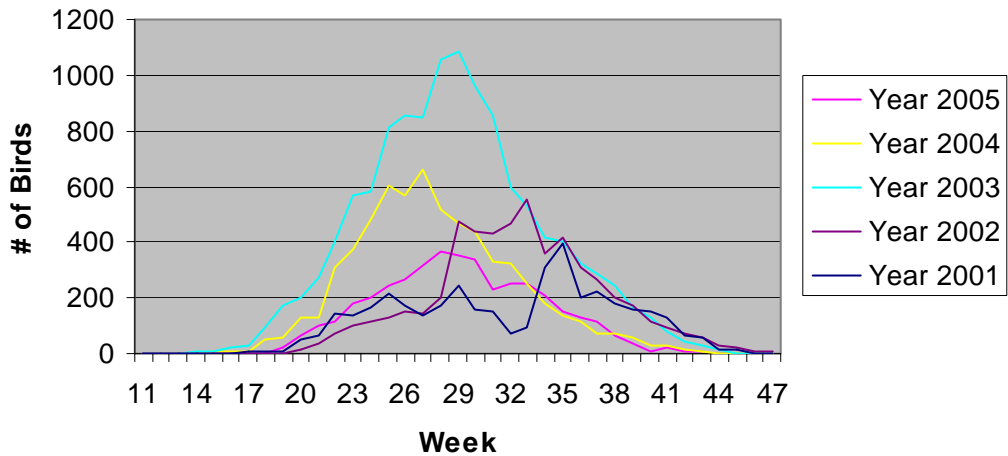
Note: No positives were reported in 2005 for BC, YK, NT, NU, NB, PE, NS, NL  
**Peak weeks** (submissions and positives) – week 31-37.

Province	2005				2004				2003			
	# Submitted	# Tested	# Positive	% Positive	# Submitted	# Tested	# Positive	% Positive	# Submitted	# Tested	# Positive	% Positive
AB	215	215	6	2.8	673	670	9	1.3	1500	1483	232	15.6
BC	1120	1062	0	0	1470	1437	0	0	1942	1913	0	0
MB	174	161	12	7.5	337	316	16	5	924	826	133	16
NB	259	256	0	0	535	509	0	0	885	818	6	0.7
NF	73	63	0	0	96	92	0	0	69	64	0	0
NS	205	203	0	0	476	460	0	0	970	912	17	1.9
NT	7	7	0	0	12	10	0	0	23	21	0	0
NU	0	0	0	0	2	2	0	0	3	3	0	0
ON	1328	1290	300	23.3	1440	1403	250	17.8	1718	1484	242	16.3
PE	86	81	0	0	116	107	0	0	273	254	0	0
QC	554	532	115	21.6	898	866	112	13	2711	2576	846	32.8
SK	130	121	14	11.6	398	364	29	8	1192	952	157	16.5
YT	0	0	0	0	14	11	0	0	30	26	0	0
<b>Total</b>	4151	3991	447	10.8	6467	6247	416	6.7	12240	11332	1633	14.4

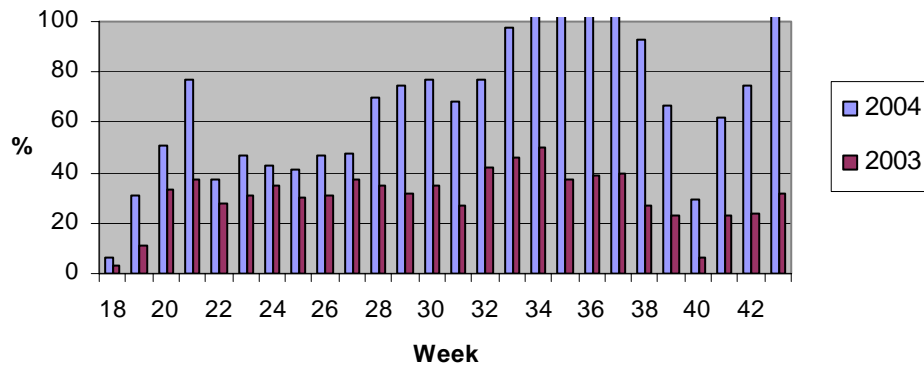
## Bird Submissions by Week

Overall, the number of birds submitted nationally was lower than in previous years (64% that of 2004 and 34% of 2003) but this belies the fact that there were significant regional discrepancies in the number of birds submitted, with significantly fewer bird submissions in the prairie provinces, Quebec and the Atlantic region. In contrast, bird submissions were actually up or remained the same in Ontario and British Columbia (page 5)

**# of Birds Submitted by Week 2005-2001**

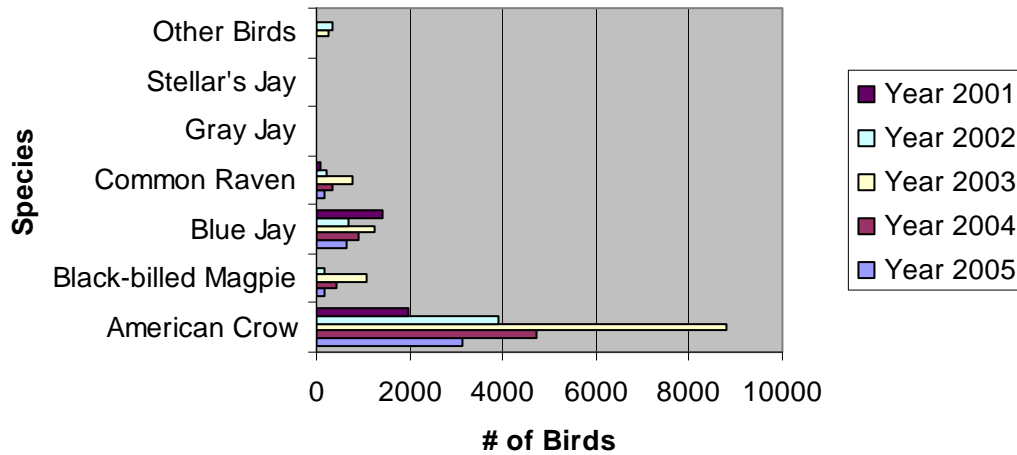


**% of Birds Submitted by Week in 2005 (Comparison)**

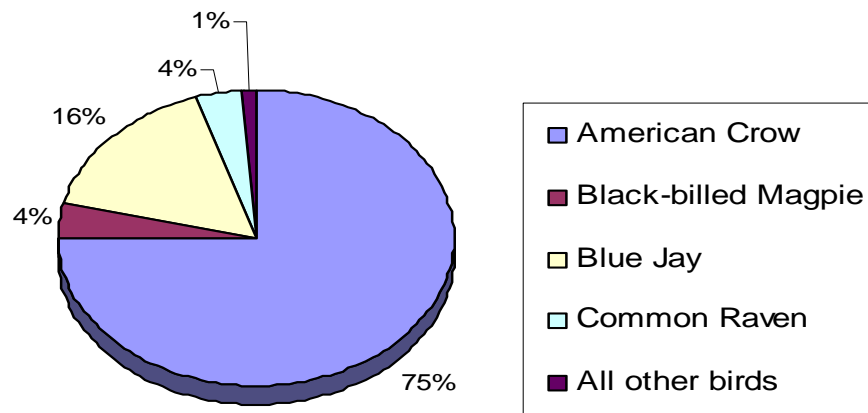


# Birds Submitted by Species

**# of Birds Submitted by Species 2001-2005**



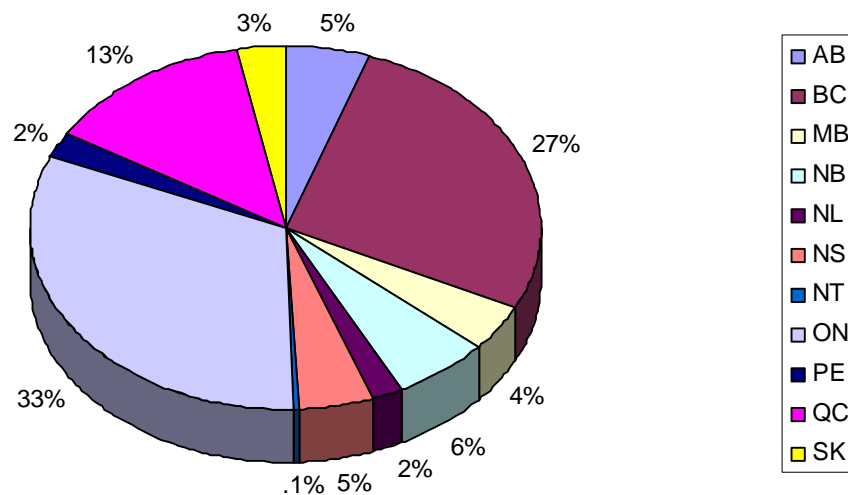
**Species Submitted - 2005**



## Birds Submissions by Province/Territory

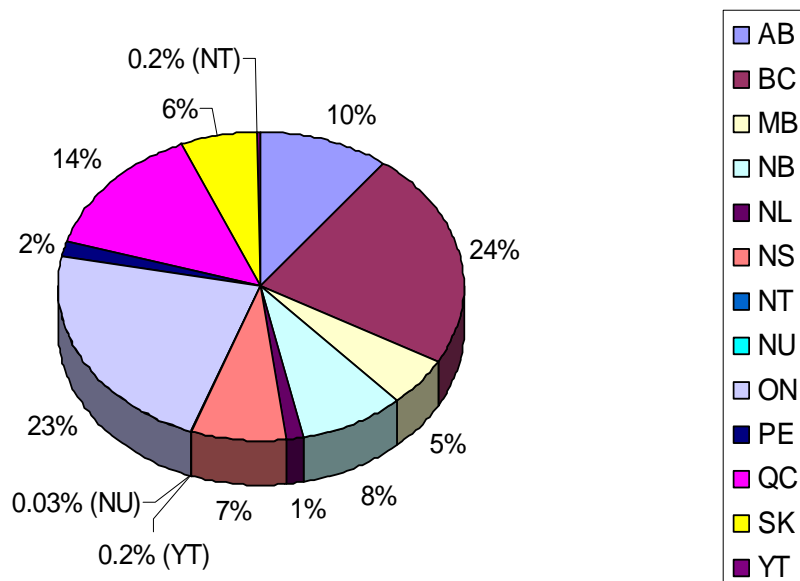
As previously noted, the number of bird submissions was down in 2005 from previous years. However there were significant regional variations in the number of birds submitted, BC and ON together made up 60% of all bird submissions nationally, an increase in proportion of 13% from 2004.

**# of Birds Submitted by Province / Territory 2005**



Note: in 2005 there were no submissions from YT and NU

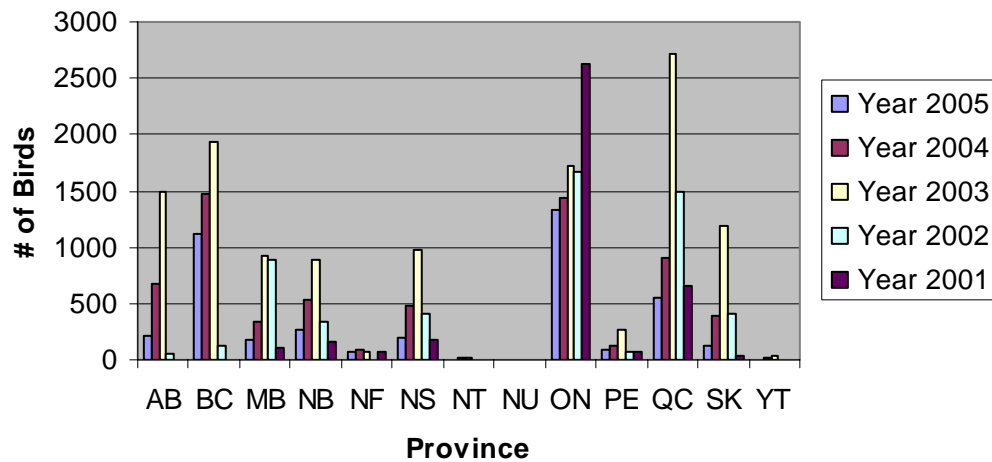
**# of Birds Submitted by Province / Territory 2004**



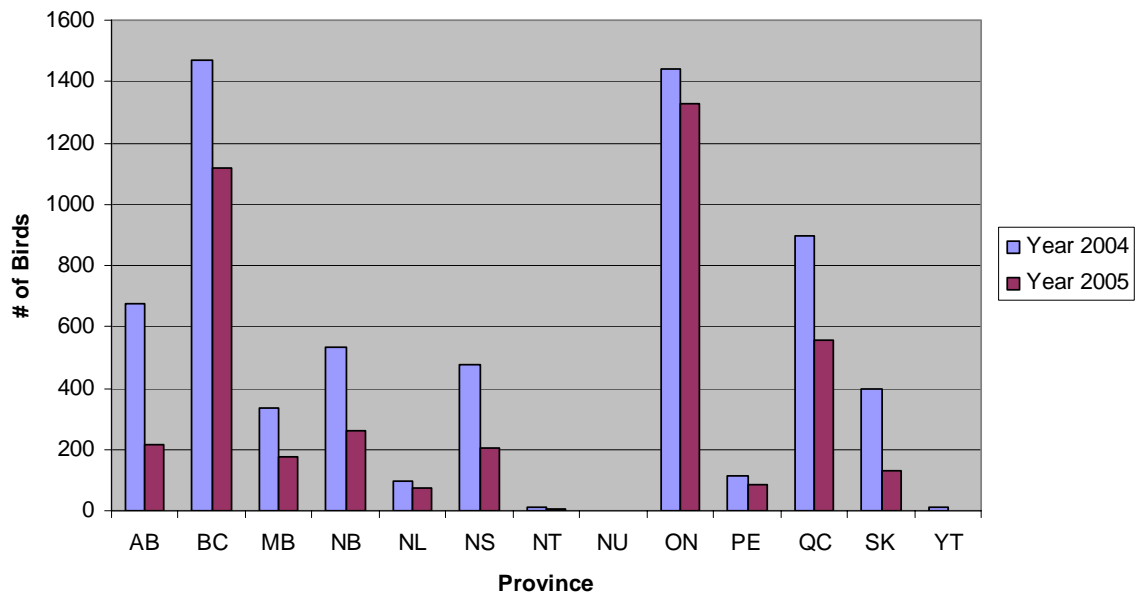
# Birds Submissions by Province/Territory

## 2005-2001

# of Birds Submitted by Province/Territory 2005-2001



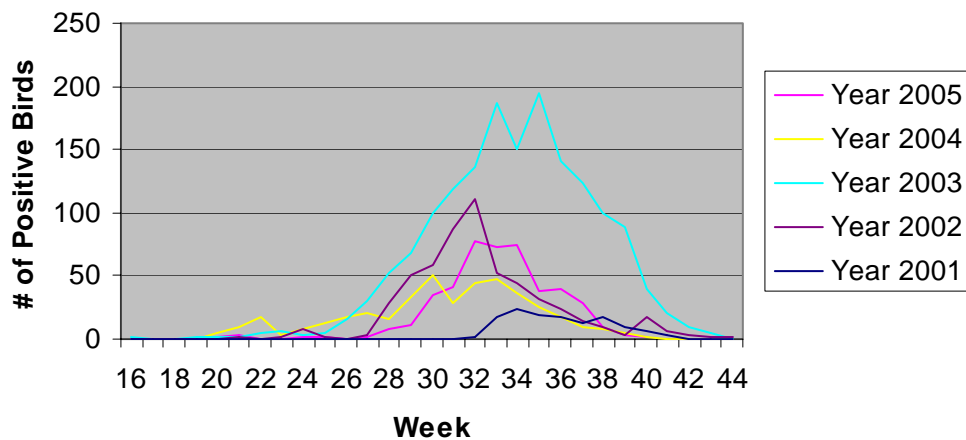
# of Birds Submitted by Province/Territory



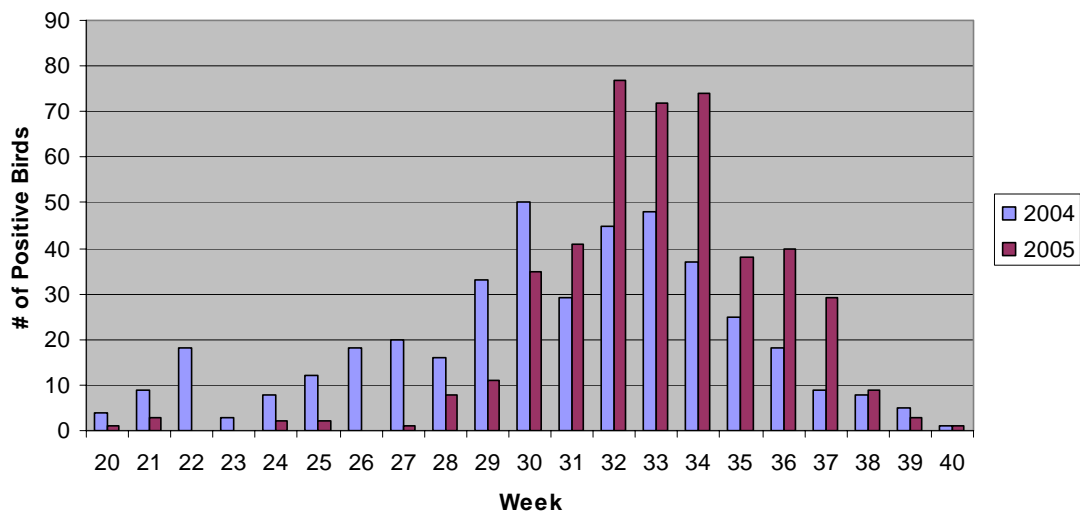
## Positive Birds by Week

As in the past, the first bird to be reported positive for West Nile Virus was found around the beginning of May (Week 20), and peak WNV activity, as reflected by the number of positive birds, was from approximately week 30 to 37 (late July to early September).

**# of Positive Birds by Week 2005-2001**



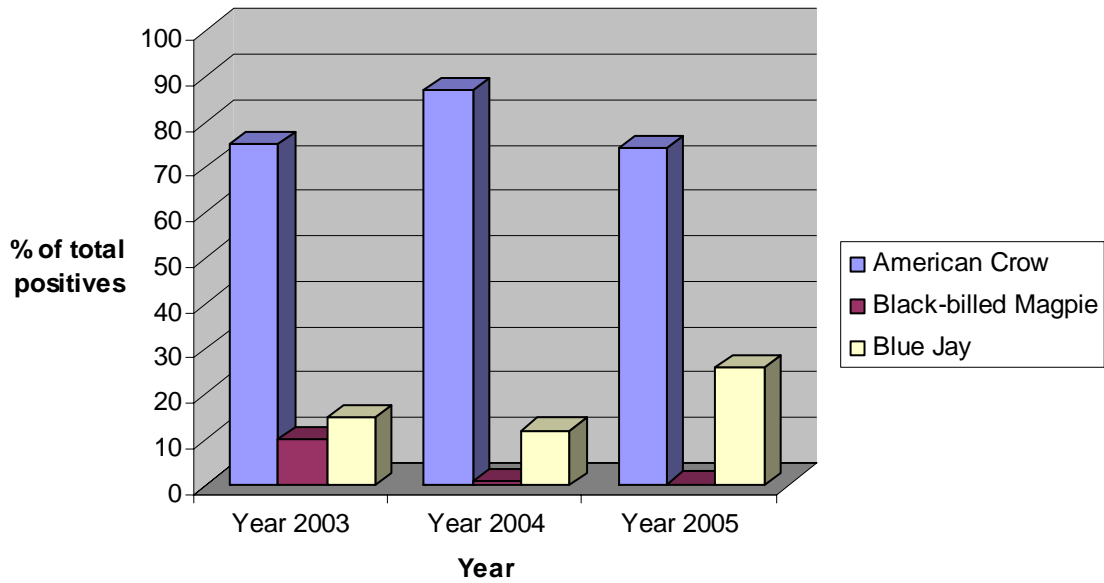
**Positive Birds by Week - 2004-2005**



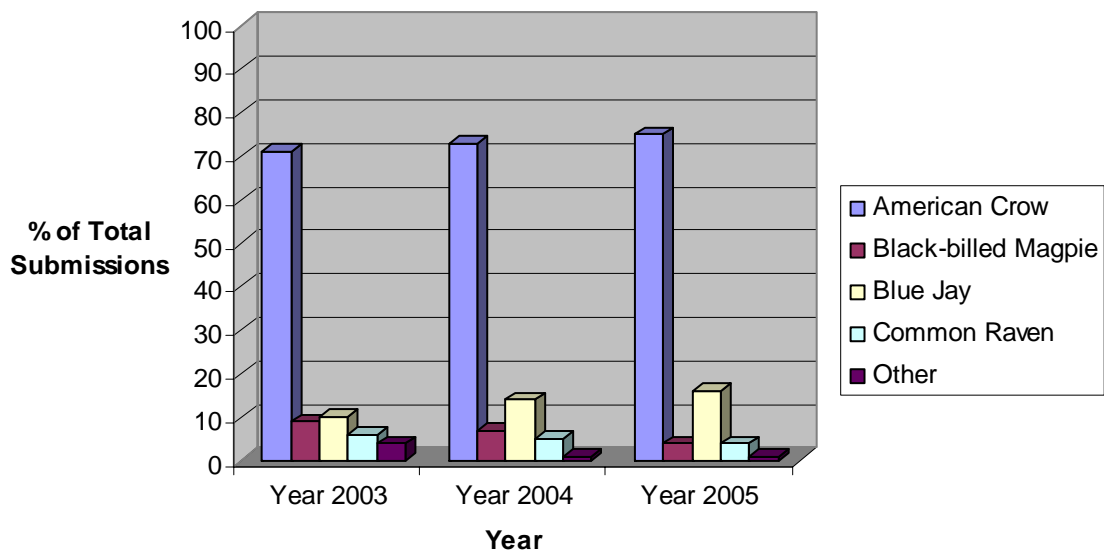


# Positive Birds by Species

Proportion of Positives by Species 2003-2005

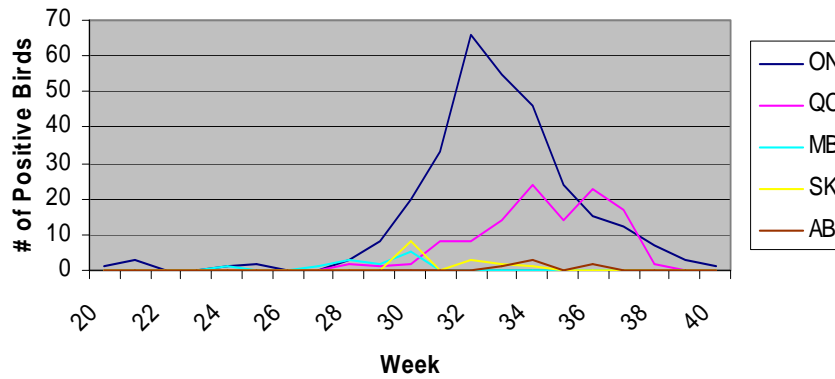


Proportion of Submissions by Species 2003-2005

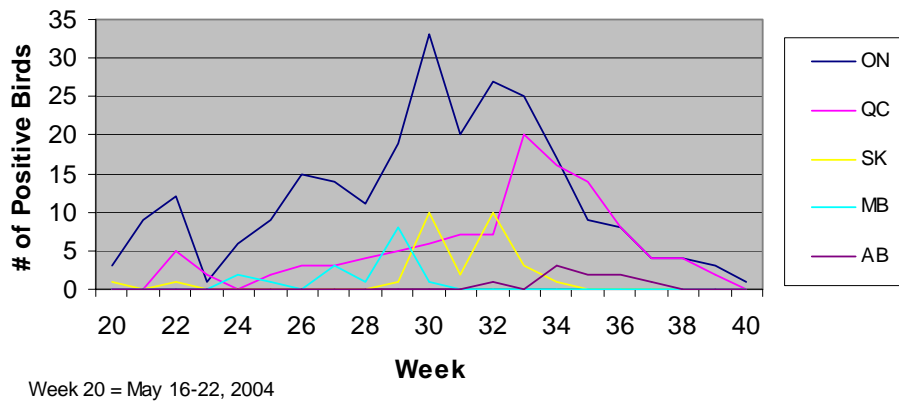


# Positive Birds by Province/Territory and Week

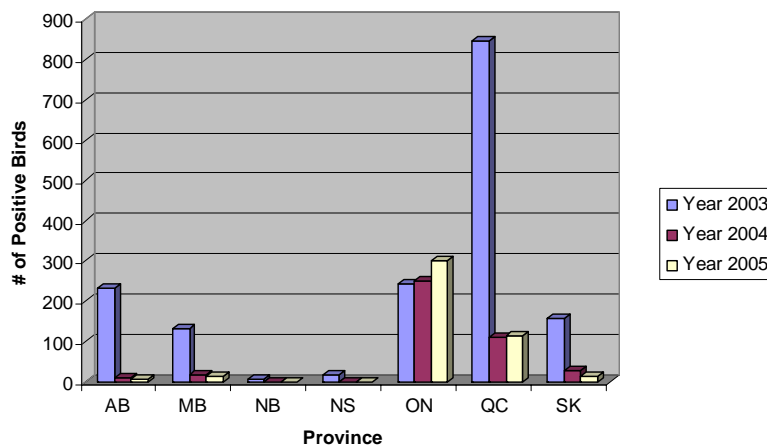
## # of Positive Birds by Province and Week - 2005



## # of Positive Birds by Province and Week - 2004



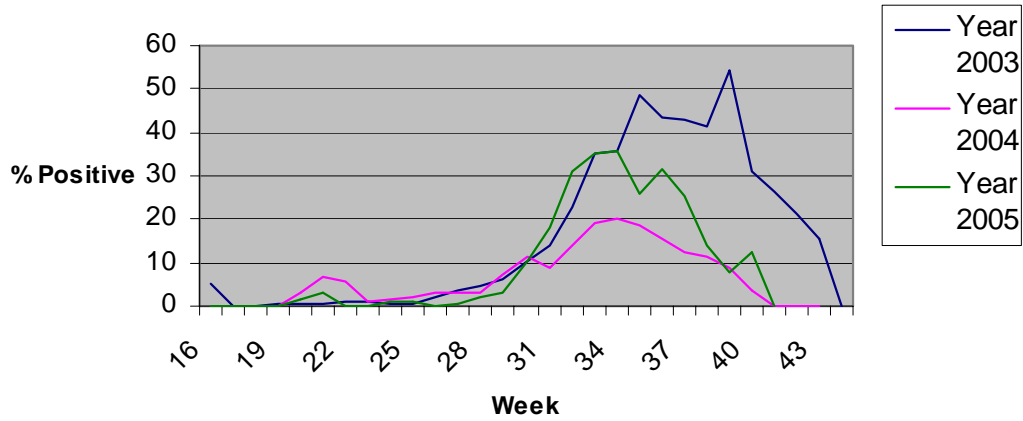
## Positive Birds by Jurisdiction



While program termination dates influence these numbers, a comparison from 2003 onwards shows that, proportionately, ON and QC comprise 80% or more of the positive birds tested, while making up only 40-50% of the total number of birds tested.

# Percent Positive

% Positive by year



Province	2005				2004				2003			
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AB	215	215	6	2.8	673	670	9	1.3	1500	1483	232	15.6
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YT	0	0	0	0	14	11	0	0	30	26	0	0
<b>Total</b>	<b>4151</b>	<b>3991</b>	<b>447</b>	<b>10.8</b>	<b>6467</b>	<b>6247</b>	<b>416</b>	<b>6.7</b>	<b>12240</b>	<b>11332</b>	<b>1633</b>	<b>14.4</b>

# Saskatchewan Health/CCWHC 2005 House Sparrow Project

A pilot project was initiated in 2005 between the CCWHC and Saskatchewan Health to detect West Nile Virus in House Sparrow nestlings. Blood was collected from nestling House Sparrows and tested via PCR for WNV. A total of 74 samples was collected at two distinct time periods (corresponding to the nesting periods of the Sparrows): 61 samples were collected during the first two weeks of July and an additional 13 samples were collected in mid-August. All samples were collected from the Outlook area of Saskatchewan, near Saskatoon.

## Results:

4 of the 61 samples collected in July tested positive for WNV, the first positive dating from July 7<sup>th</sup>, **almost two full weeks in advance of the first dead corvid that tested positive in Saskatchewan and over 5 weeks in advance of the first positive dead corvid found in the surrounding region (Saskatoon).**

An additional 4 positives dated from the second sampling period in mid August (4 out of 13). Prevalence of WNV infection was 6.5% in the July sample (n=61) and 30% in the August sample (n=14). Overall prevalence was 8 of 74 (0.11).

In the past, rural areas of SK have been inadequately represented by the dead corvid surveillance program, as reflected by the very small number of submissions from these areas. This is particularly unfortunate in that data deriving from both mosquito surveillance and human WNV cases suggest that these regions are some of the most active for WNV in Saskatchewan. Surveillance for early WNV activity based on House Sparrows should be further explored as a means of achieving effective surveillance in rural areas.

# Non-corvid WNV Positive Submissions

In addition to the thousands of crows and their close relatives that have been examined under the dead corvid WNV surveillance program (approximately 30,000 to date), the CCWHC has documented disease, due to WNV, in 21 other species through its regular system of wildlife disease surveillance. A search of the CCWHC database revealed approximately 100 confirmed cases from 5 provinces over a 4 year time period (2002-2005 inclusive).

Of these, Eagles, Hawks and Owls are the most commonly affected species. In addition to these larger birds, positive West Nile Virus diagnoses have been documented in such species as American Robins, Eastern Bluebirds, Cedar Waxwings, Merlins, American Kestrels, Eastern Gray Squirrels, Red Squirrels and the endangered Sage Grouse.

