

# Integrated West Nile Virus Surveillance in Saskatchewan: The 2003 Season

Becky Corrigan, DVM, WCVN, Saskatoon, SK  
Cheryl Waldner, DVM, PhD, WCVN, Saskatoon, SK  
Hugh Townsend, DVM, MSc WCVN, Saskatoon, SK  
Tasha Epp, DVM, WCVN Saskatoon, SK

# WNV in Saskatchewan

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- First detected in 2002
- 2003 Surveillance Scheme
  - Human and non-human components
- Final Numbers:
  - 156 Birds
  - 133 Clinical Horses
  - 35 Positive Viral Mosquito Pools
  - 935 Human Cases
  - 11 out of 350 IgM early warning horses



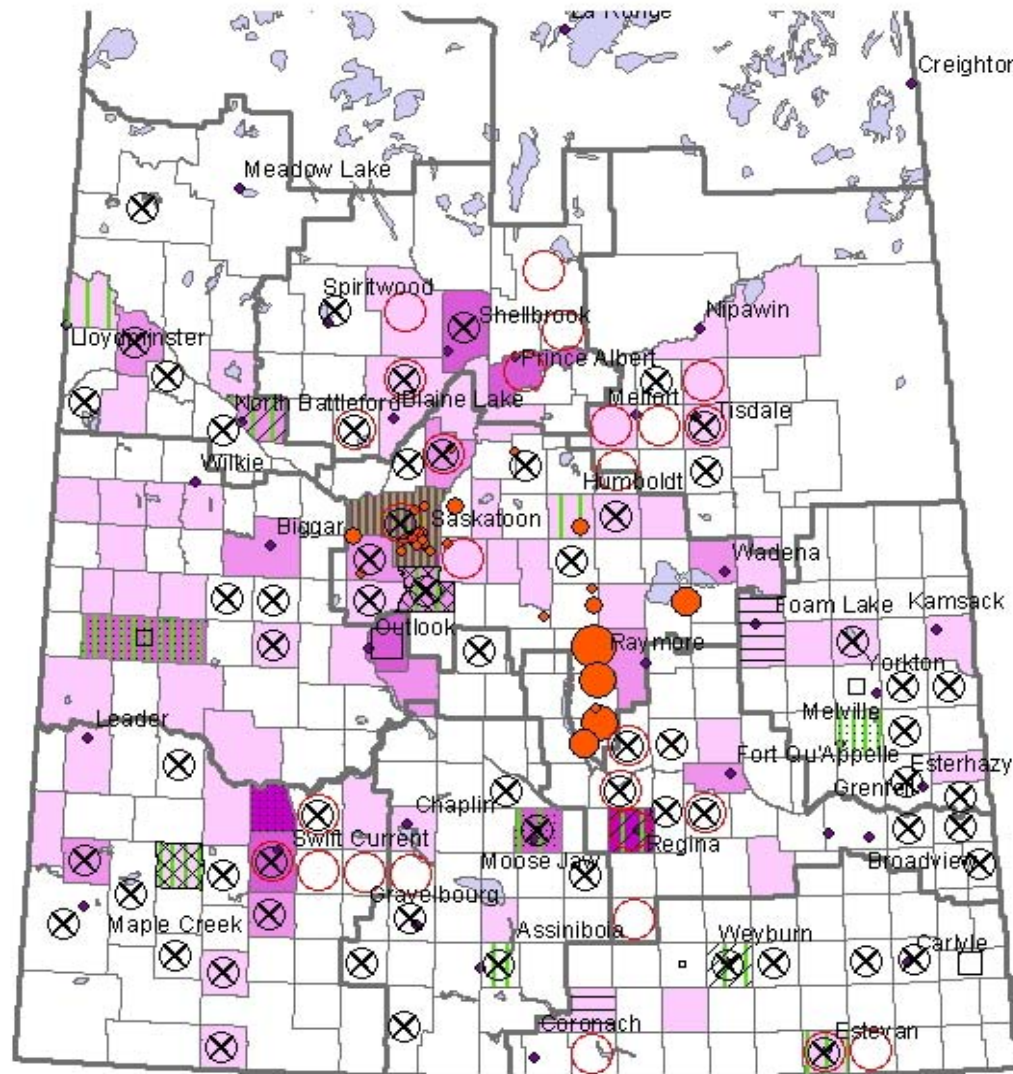
# Early Warning Horse Surveillance

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- Purpose
- 350 horses sampled
- 6 areas in southern Saskatchewan



# WNV Integrated Surveillance October 20, 2003

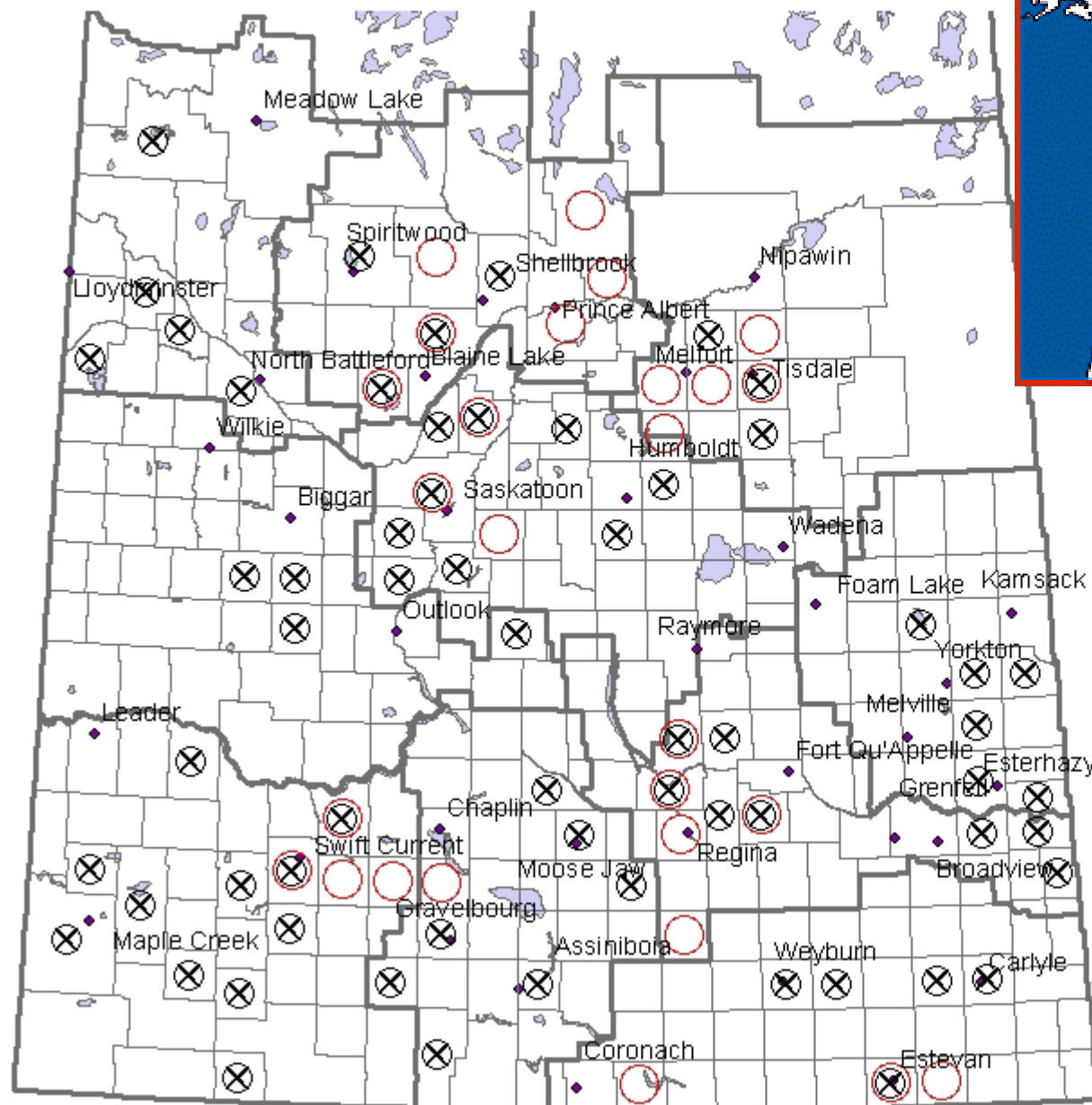


## Legend

- ◆ NIT locations
- Rural Municipalities
- RHAs
- Water Bodies
- % WNV+ Sentinel flocks**
  - 4.00 - 12.00
  - 12.01 - 57.00
  - 57.01 - 65.00
  - 65.01 - 92.00
- WNV+ Birds**
  - 1
  - 2
  - 3-5
  - 6-28
- Horses \* Sept 12**
  - ⊗ 1-5 clinical cases
- IgM+**
  - 1
- C tarsalis Positive Pools**
  - ▨ 1
  - ▨ 2
  - ▨ 3
- Percent C tarsalis CDC**
  - ▨ 6 - 10
  - ▨ 11 - 14
  - ▨ 15 - 20
  - ▨ 21 - 50
- Human cases**
  - 1
  - 2
  - 3
  - 4-5
  - 6-7



# WNV Integrated Surveillance September 12, 2003

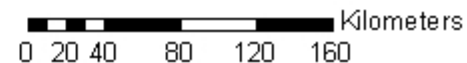


## Legend

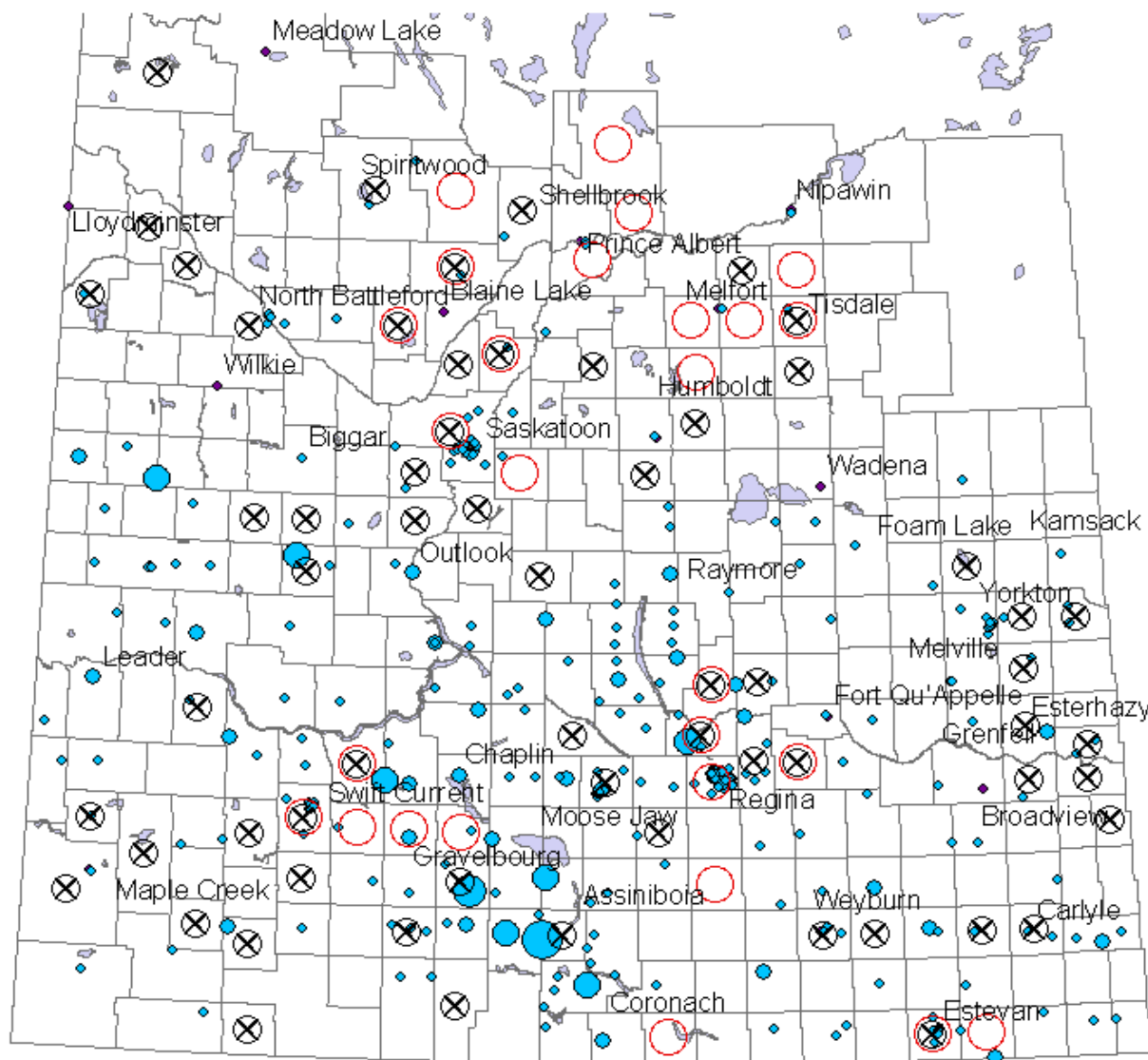
- ◆ NJT locations
- Rural Municipalities
- ▭ RHAs
- Water Bodies

## Horses \* Sept 12

- ⊗ 1-5 clinical cases
- 1 IgM+



# West Nile Virus Integrated Surveillance Saskatchewan, 2003



### Total WNV cases\*

- 1 - 3
- 4 - 8
- 9 - 15
- 16 - 21
- 22 - 38

### IgM+ horse

- 1

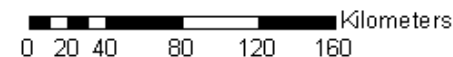
### Clinical horse cases

- ⊗ 1-5 clinical cases

### Water Bodies

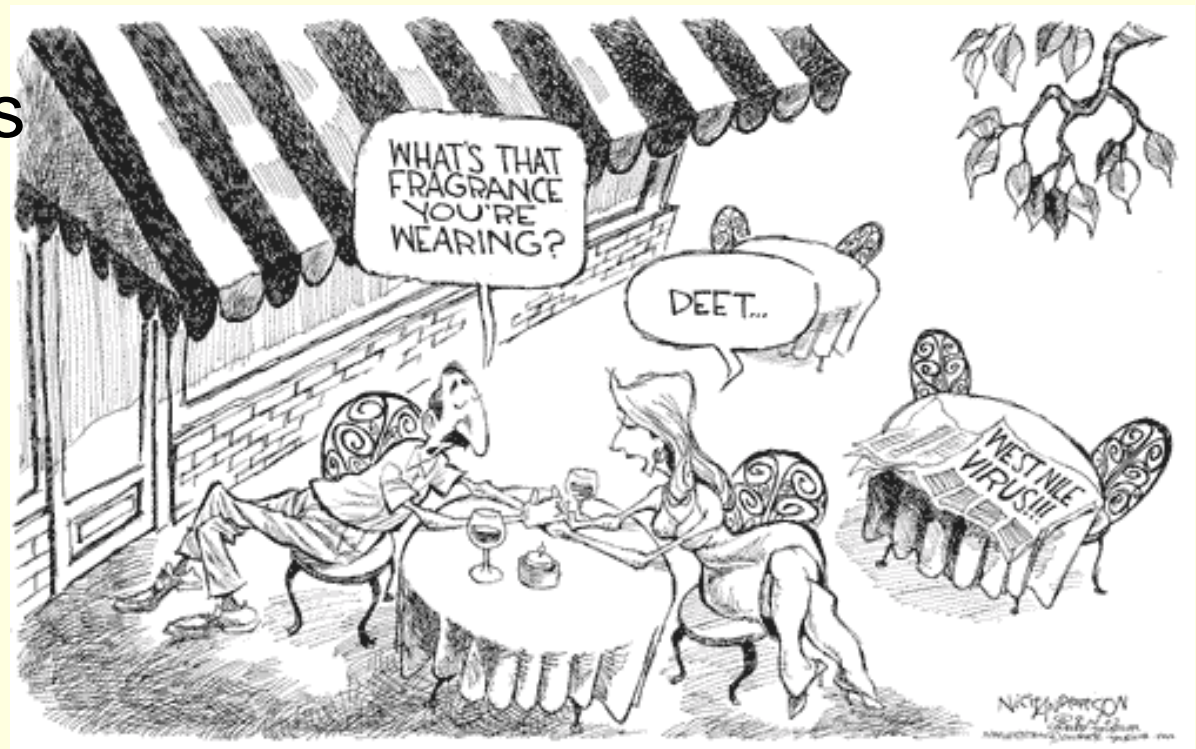
### Rural Municipalities

Source: Preliminary data. n=804; 25 cases not ascribed location.  
Non-human data cumulative to Sept 18. Not for publication.



# Spatial Regression

- Purpose
- Methods
- Univariate Associations
- Multivariate Modeling



# Results

<b>Outcome</b>	<b>Predictor</b>	<b><math>\beta</math></b>	<b>P-value</b>	<b>SE</b>	<b>95%CI</b>	<b>Level</b>
Percent IgM Horses	Percent <i>Culex</i> spp. In NJLT	11.55	0.0571	2.8861	5.808-17.295	RM
	Percent water coverage	2.74	0.1322	1.1095	0.5324-4.9482	
Percent Positive Humans	Percent Positive Birds	0.0058	0.0033	0.0012	0.0034-0.0082	RHA
	Percent <i>Culex restuans</i> in NJLT	0.0053	0.0024	0.0010	0.0033-0.0073	

# Acknowledgements

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- WCVN Equine Health Research Fund
- Saskatchewan Health
- Saskatoon Health Region
- Wyeth Animal Health
- WCVN Interprovincial Graduate Student Fellowship Fund
- Saskatchewan Agriculture
- Manitoba Agriculture
- Health Canada
- Canadian Co-operative Wildlife Health Center

# References

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- Horse Population—CCS (census consolidated sub-division) for SK, MB, AB, BC 2001 Census of Agriculture, Statistics Canada
- Human Population—DMTI Spatial Inc. 625 Cochrane Dr 3<sup>rd</sup> floor, Markham, ON, L3R 9R9, [www.dmtispatial.com](http://www.dmtispatial.com), from DMTI Spatial Postal Code map for Canada, Six Digit PCs AB, MB, SK, Arcview format, Dec. 13, 2000
- Accumulated Precip—PFRA Drought Watch Maps, Accumulated Precipitation from April 1-August 31/03 (see website in e-mail)
- Land Cover—PFRA Generalized Landcover for the Canadian Prairies (see E-mail for website etc.) 1993-1995