

Biweekly West Nile Virus Surveillance Report, 2026: June 21-July 04

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1. West Nile virus transmission risk (June 21-July 04, 2026)

- West Nile virus (WNV) activity has not been detected in the province to date.
- The risk of WNV transmission is minimal but is expected to increase as environmental conditions become more favourable for *Culex* mosquito activity.
- Accumulated degree days remain below levels typically associated with sustained *Culex* spp. activity.
- Mosquitoes are most active on warm evenings and between dusk and dawn. Take precautions to avoid mosquito bites.

The risk of West Nile virus (WNV) infection in humans depends on various factors including time of year, number and location of infected mosquito vectors (*Culex tarsalis*, *Culex restuans*/*Culex pipiens*¹, and *Culex territans*), and number of days with sufficient heat. In Saskatchewan, *Culex tarsalis* is the main transmitter of WNV to humans. It is abundant in the southern areas of the province where it is hotter and drier. *Culex tarsalis* is rarely found in the northern forested areas.

The risk of WNV transmission is low in the spring but often rises through the early and midsummer period, reaching a peak during the latter part of July and August. Infected, overwintered *Culex tarsalis* females may pose a small risk of transmission in spring.

The WNV risk levels may vary from minimal, when *Culex* spp. mosquitoes are rare and the weather has not been conducive for virus cycling in mosquitoes and birds, to high when there are high numbers of WNV-infected mosquitoes and the weather and habitat conditions have been optimal for mosquito population growth, biting activity and transmission of the virus to humans.

Risk levels are determined in Saskatchewan through degree day or heat accumulation and weather factors such as precipitation. Other relevant factors that help determine risk to humans include time of year, past and predicted weather patterns, proximity to populated areas and detection of WNV-positive birds and horses.

West Nile Virus Risk

Minimal – Accumulated degree days remain below the approximate threshold (150-200 degree days) typically associated with the onset of *Culex* spp. activity. While risk is minimal, it is not zero.

Low – Accumulated degree days have reached the range (150-200 degree days) associated with emergence of the first generation of *Culex* spp. mosquitoes. The probability of exposure to an infected mosquito remains low.

Moderate – Accumulated degree days (250-300 degree days) support increased *Culex* spp. abundance, including emergence of second-generation mosquitoes. Evidence of WNV activity (e.g., positive birds) has been detected. The probability of exposure to an infected mosquito is moderate.

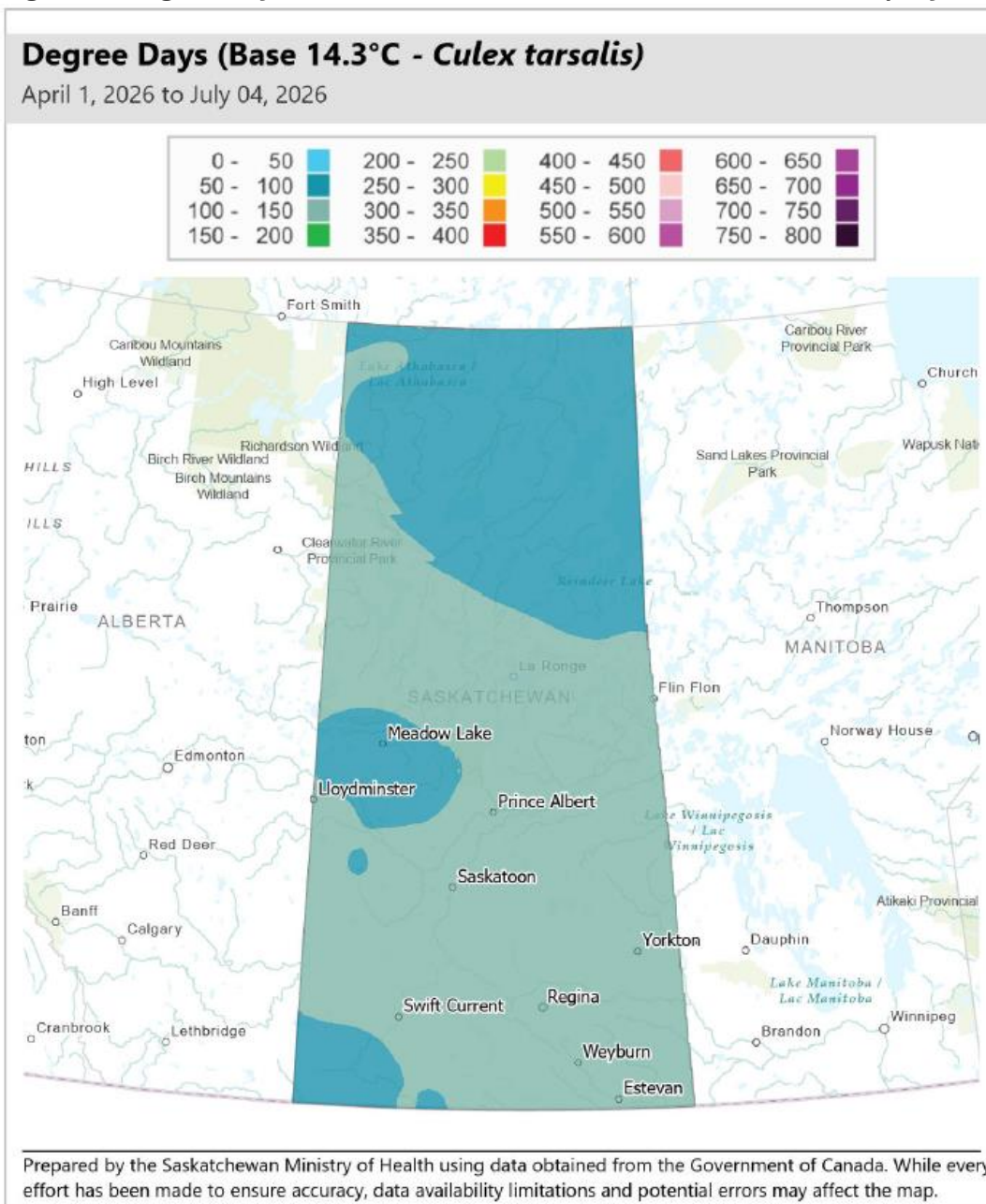
High – Accumulated degree days exceed levels (>250-300 degree days) associated with peak *Culex* spp. activity. Evidence of WNV transmission is present in animals or humans. The probability of exposure to an infected mosquito is high.

¹A small number of *Culex pipiens* mosquitoes were detected in 2023 through the provincial mosquito surveillance program. *Cx. pipiens* are competent vectors of WNV. *Cx. pipiens* and *Cx. restuans* are morphologically similar; genetic analysis is required for species confirmation.

2. Degree day accumulation

- Accumulated degree days remain relatively low across Saskatchewan, with most areas ranging from 100-150 degree days and lower accumulations observed in southwestern areas (Figure 1).
- Current heat accumulation is below levels typically associated with peak *Culex* mosquito abundance and widespread West Nile virus activity. *Culex tarsalis* activity is generally observed once the 150-200 degree day threshold is met, usually beginning in the southeast of the province.

Figure 1: Degree day accumulations, Saskatchewan, Base 14.3°C (July 04, 2026)



Note: There are more habitat and higher numbers of *Culex tarsalis* in the southern portion of Saskatchewan. *Culex tarsalis* is rarely found in forested areas.

Degree day: a measurement of heat accumulation from April 1. The threshold temperature below which WNV development and transmission is unlikely to occur in *Culex tarsalis* mosquitoes is 14.3°C. Degree days are calculated by subtracting the threshold or base temperature from the daily mean temperature each day. These are then summed to provide the total accumulation for the season.

Example: Mean daily temperature = 19.3°C; threshold temperature = 14.3°C; $19.3 - 14.3 = 5.0$ degree days.

Degree days are used in two ways. First, to predict *Culex tarsalis* development throughout the season by recording the total of accumulated degree days. On average, it takes approximately 250 to 300 degree days (base 14.3° C) before the second generation of *Culex tarsalis* emerges.

Females of the second generation are most numerous and are largely responsible for transmission of WNV to humans. A total of 109 degree days are required for virus development to be completed within a particular population and for potential transmission to occur.

The second use of degree days is to determine the WNV transmission risk of infected mosquitoes. The risk of WNV transmission increases with increasing degree day accumulation. Moreover, consistently warmer temperatures will significantly shorten virus development time in the mosquitoes. This increases the potential risk of WNV transmission, if the virus is present and other conditions are favourable.

3. West Nile virus animal cases, 2026

The Canadian Wildlife Health Cooperative tests dead wild birds for WNV. Results from dead bird surveillance can provide an early indicator of WNV activity in the province.

Table 1: Number of WNV positive birds by date and ecological risk area, June 07 to July 04, 2026

	(1) Boreal Forest	(2) Boreal Transition	(3) Moist Mixed Grassland & Aspen Parkland	(4) Mixed Grassland	Weekly Totals
June 07- June 20	0	0	0	0	0
June 21 – July 04	0	0	0	0	0
July 05 – July 18					
July 19 – August 01					
August 02 – August 15					
August 16 – August 29					
August 30 – September 12					
September 13 – September 26					

Infections in animals such as horses are seasonal and often occur later in the season. The virus is well established in mosquito vectors in Saskatchewan. Infections in horses can provide an indication that infections in humans may be occurring as well.

Table 2: Number of WNV positive horses by date and ecological risk area, June 07 to July 04, 2026

	(1) Boreal Forest	(2) Boreal Transition	(3) Moist Mixed Grassland & Aspen Parkland	(4) Mixed Grassland	Weekly Totals
June 07- June 20	0	0	0	0	0
June 21 – July 04	0	0	0	0	0
July 05 – July 18					
July 19 – August 01					
August 02 – August 15					
August 16 – August 29					
August 30 – September 12					
September 13 – September 26					

4. West Nile virus human cases, 2026 and 2011-2025

As with horses, human infections are seasonal and often not detected until later in the season. Other environmental risk indicators provide a timelier indication of risk.

Table 3: WNV surveillance in humans, June 21 to July 04, 2026

Number of WNV Positive Lab Tests*	WNV neuroinvasive disease [†] cases	WNV Deaths
0	0	0

Notes:

*These include tests done by the Roy Romanow Provincial Laboratory (RRPL) and Canadian Blood Services (CBS).
A positive laboratory test does not necessarily indicate a current WNV infection. There may be multiple positive tests for one person. A positive WNV laboratory test result may be associated with a WNV neuroinvasive disease case.
[†]The most useful indicator for the burden of disease in the general population is WNV neuroinvasive disease cases. For every case of WNV neuroinvasive disease, there are approximately 150 WNV infections in humans.
The vast majority of people with WNV infections do not seek medical care.

Table 4: Human WNV neuroinvasive cases and deaths in Saskatchewan 2011–2025

Year	Neuroinvasive Cases	Deaths*
2011	0	0
2012	0	0
2013	7	1
2014	1	0
2015	0	0
2016	0	0
2017	1	1
2018	3	1
2019	0	0
2020	0	0
2021	1	0
2022	0	0
2023	3	0
2024	5	0
2025	3	0
Total	24	3

Note:

*Deaths are included in WNV neuroinvasive case numbers. 2025 numbers are preliminary and subject to change.