

# The West Nile Weekly

**SUMMARY:** Five to fifteen counties are expected to report human cases in the week beginning September 5th. By Sept. 11th, we should be 9/10 through the WNV season. Estimated risk has begun to decline, but mosquitoes are still infected and their populations are not yet crashing as expected.

## How are the mosquitoes?

Despite a stretch of cold days, temperatures have not been cold long enough to dampen *Culex tarsalis* populations, which have only declined slightly since last week. The nuisance *Aedes vexans* have stayed constant since last week, and average collections have not fallen like we expected them to.

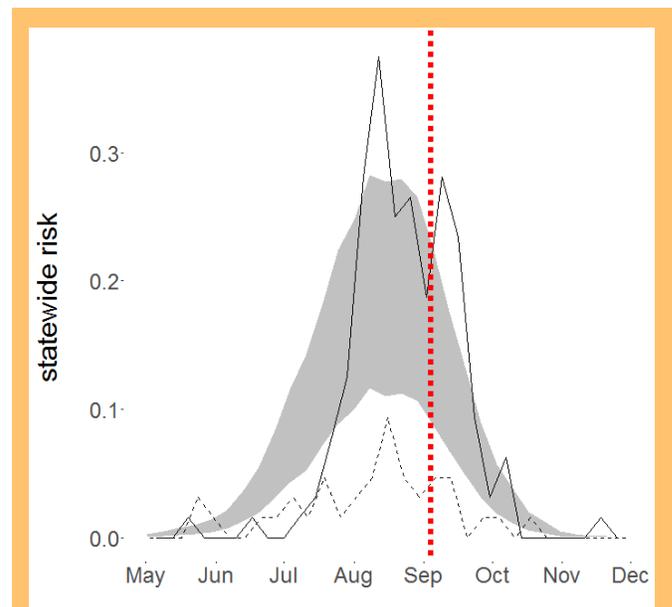
On August 28th, there have been 180 positive vector pools and 59,218 mosquitoes tested since the beginning of the year, and the MIR is estimated to be 3.0 positive mosquitoes per 1,000 tested, up from 2.6 last week. We are still most concerned by Brookings Co., which has at least 4.2 positive vectors per 1,000 tested, up from 4.1 last week. Brown has risen from 2.3 to 2.6 positive per 1,000 tested.

That is, mosquito infection rates continue to climb while mosquito numbers are failing to collapse as quickly as expected. If we measure the 2016 WNV season by mosquitoes and their infections, WNV risk is not yet beginning to wane.

At this point in the year, vectors may begin to feed less on birds, which are no longer tied to nests and will be less available, and thus may turn to other available hosts (such as humans) more frequently.

## What to expect?

Last week we estimated that 16.7% of all counties would report cases; for the week beginning September 5th, we've fallen to 13.8%, and expect 5 to 15 counties to report cases. Brown County has a 68.7% chance (or 2 in 3 chance) of reporting a case; all other counties are below this level of risk.



**Figure 1:** Estimated statewide risk in SD for 2016 (band), with risk in 2012 (solid), 2015 (dashed), and the current week (dashed, red).

Historically, 6% of cases occur in the week of September 5th - 11th. Of all cases, 91% tend to occur before Sept. 11th. By the end of this week we should be 9/10 of the way through the season, and only 1 out of every 10 cases remains to be discovered.

We estimate that there will have been at least 99 cases in SD in 2016 by September 11th, and we estimate that there will be at least 119 cases in SD in 2016. This is essentially unchanged from our previous estimate of at least 114 cases.

Figure 2, showing the per-county risk, has cooled down from the previous week, and most counties have returned to a lower level of risk. Per-person risk (Figure 3) has shifted only slightly, with most risk still concentrated in the eastern half of the state.

Brown and surrounding counties are still at highest per-person risk, with an estimated 3.5 cases per 100,000 citizens during this week.

Risk has been temporarily dampened due to a week with cool temperatures, but mosquitoes are still present, mosquitoes are still infected, and temperatures are expected to return to the mid-70s before falling. There is still a definite period of risk for individuals to become infected, and we will not be truly comfortable until after the first freeze.

We are concerned, in particular, that citizens will be tempted outdoors by falling temperatures. This is especially true with Labor Day on Monday the 5th - we imagine that many individual will take advantage of this holiday to get outdoors after a stiflingly hot summer, and they may not think to protect themselves from lingering mosquitoes still carrying the virus.

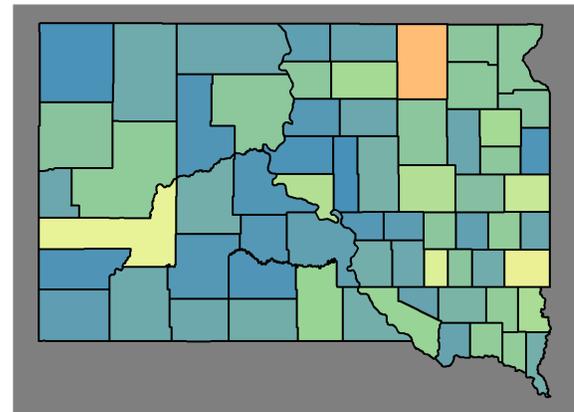
We continue to recommend spraying where resources are available, especially near any outdoor venues that will be used for public events during the holiday.

### What's going on elsewhere?

Human cases in [CA](#) (78 as of Aug. 26th) have risen above the 5-year average (68 cases) for this point in the year. [Almost every state](#) has reported at least one case by now, but our [incidence](#) is by far the highest when compared to all other states. A 70-year-old man in ND tells a detailed, helpful [story of recovery](#) three years after paralysis due to WNV.

Busch Gardens and Disney in [FL](#) are offering free repellent that customers can apply to themselves. We are watching this experiment carefully - if successful, this may be a good model for public events in SD. There are, however, difficult questions around the public's response, a vendor's liability, cost, etc.

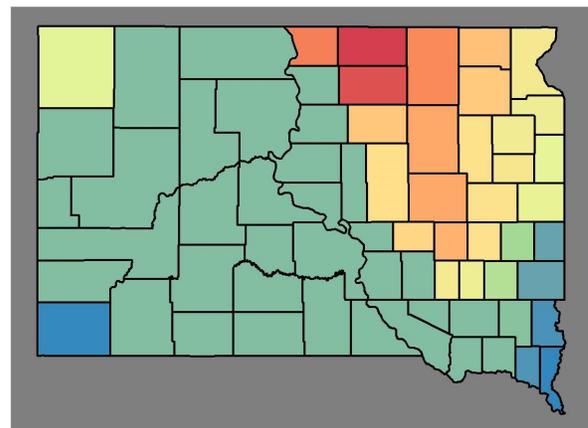
A group in Canada published a study of [healthcare costs attributable to WNV](#). The average 3-year cost was nearly \$24,000 per case (in US dollars), with most of the costs incurred in late-death cases, in which death occurred more than 30 days after diagnosis. This is an average and fatal disease (around 12% of cases) cost much more than this.



will definitely not report any cases

will definitely report some cases

**Figure 2:** Estimated per-county risk for the week beginning Sept. 5th. Brown County has a 2 in 3 chance of reporting at least one case.



lowest per-person risk this week

highest per-person risk this week

**Figure 3:** Estimated per-person risk for the week beginning Sept. 5th, still mostly concentrated in the Prairie Pothole Region.

[Canada](#) has only reported 3 cases on August 13th, all in Manitoba, directly north of North Dakota. WNV is especially active in [Romania](#) this year, and cases have been reported throughout the [EU](#).

