

The West Nile Weekly

SUMMARY: Four to ten counties are expected to report human cases in the week beginning September 12th. By Sept. 18th, we should be 95% through the WNV season. Estimated risk is definitely declining, but numbers will continue to increase as old cases are reported. *Aedes vexans* populations are behaving oddly.

How are the mosquitoes?

Culex tarsalis populations have fallen by nearly 50% since last week, probably due to cooler temperatures. The species should be collapsing at this point in time, and this is good news for human WNV.

Aedes vexans, however, have rallied since last week. After 154 samples from 6 counties, there were on average 97 of the nuisance mosquito per trap night.

The species, at this point in time, should be declining. There are a handful of large (> 500) collections, but these are not solely responsible for the large average. We believe this is due primarily to a recent stretch of rainy days over the past two weeks and recall that this is a floodwater mosquito.

On Sept. 1st, there have been 203 positive vector pools, and 65,124 mosquitoes tested since the beginning of the year, and the MIR is estimated to be 3.1 positive vectors per 1,000 tested, up from 3.0 last week. This number should decline next week.

Brookings has not changed from last week, at 4.2 positive vectors per 1,000 tested. Fall River, Grant, Hughes, Lake, Lincoln, and Meade have comparable infection rates, but have tested fewer mosquitoes. Minnehaha has risen slightly to an MIR of 3.1.

What to expect?

Last week we estimated 13.8% of counties would report cases, falling to 10.0% in the week beginning September 12th, and four to 10 counties are expected to report cases. Brown County has a 58.4% chance (or 6 in 10 chance) of reporting a case; all other counties are below this level of risk.

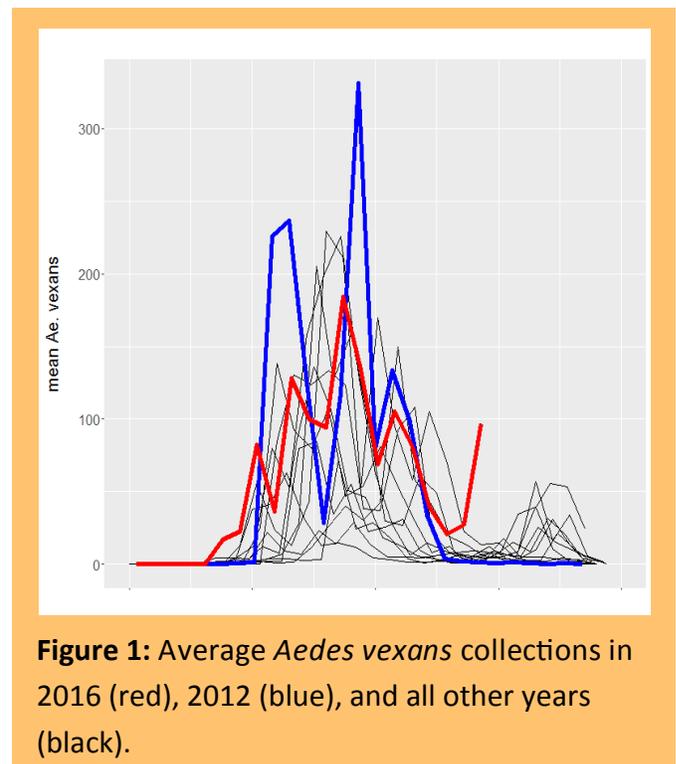
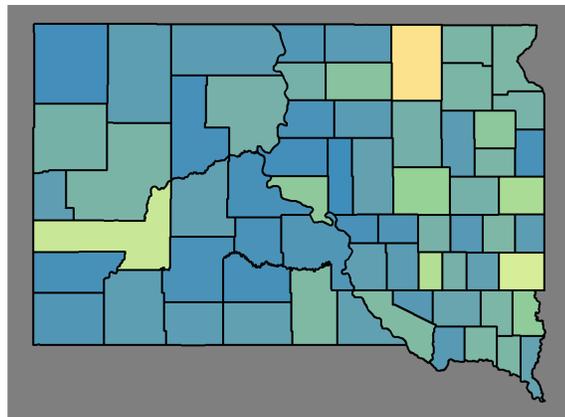


Figure 2, showing the per-county risk, has cooled down from the previous week. We estimate there should be around 1.5 new cases per 100,000 citizens.

Historically, 3.6% of cases occur in the week of Sept. 12th - 18th. Of all cases, 95% tend to occur before the 18th. We expect that only a handful of individuals will begin showing symptoms after this date.

We estimate that there will have been at least 105 cases in SD in 2016 by September 18th, and we estimate that there will be at least 118 cases in SD in 2016. This is essentially unchanged from our previous estimate of at least 119 cases.



will definitely not
report any cases

will definitely
report some cases

Figure 2: Estimated per-county risk for the week beginning Sept. 12th. Brown County has a 6 in 10 chance of reporting at least one case.

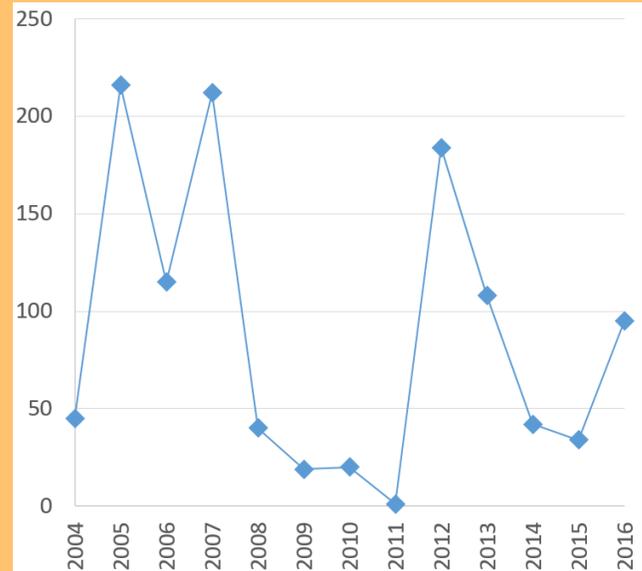


Figure 3: Total cases before Sept. 7th, by year. The case count for 2016 is likely not final, and will increase as old cases are reported.

It's useful, at this point in the year, to compare 2016 to our predictions and to previous years (Figure 3). On Sept. 7th, the SDDOH reported that there had been 95 human cases reported in SD in 2016, but this is likely not a final count. Some cases have already occurred but have not been reported to the SDDOH, and we will only learn about those cases when the year comes to an end.

Our model indicates that, when all the cases are finally reported, there will have been at least 95 cases by Sept. 7th. Keeping in mind that our model does not use human case counts from 2016 to make its predictions, we note that WNV in 2016 has been predictable given weather and mosquito infection data.

Thus, 2016 is a heavier than average WNV year for human cases and early in the season it looked heavier than average in terms of weather and mosquito data.

The pattern of human cases over space is not surprising - as is usually the case, human cases are concentrated in the eastern half of the state. We have no reason to believe that the seasonal pattern of human cases will be surprising, either - there was, for example, a large spike in cases in late 2012, but the cool weather we have recently experienced should prevent anything similar in 2016. The season was definitely warm but it is ending on a cool note, and it seems like the WNV cycle will shut down rapidly.

What's going on elsewhere?

[Toronto](#) has reported its first human WNV case. [CA](#) has reported 123 cases with on Sept. 7th. This state only saw 116 cases by this point last year, and its 5 year average is 93 cases by this point. A parish in [LA](#) (that's what they call counties) is seeing its highest mosquito infection rate since 2009. [RI](#) has found very few infected mosquitoes and no human cases.

WNV in the Americas is not restricted to the North, although it is apparently less common in [countries south of the US](#). It is not clear why this is the case, since so many other mosquito-borne viruses circulate successfully in Mexico and other Latin American countries. It is not simply that WNV is absent - a study of birds in [Argentina](#) found the virus in 1.5% of birds tested. In [Mexico](#), between 6-33%.

Zika has finally been confirmed in mosquito pools in [FL](#) - 3 positive pools with more than 40,000 vectors tested, for an extremely small MIR of 7.5 mosquitoes per 100,000 tested. That is, WNV is around 40x more common in our vectors than Zika in theirs. While Zika is mosquito-borne, it is also [sexually transmitted](#) and can be transmitted by asymptomatic individuals for longer than initially suspected. Attempts to fund a response to Zika have failed three times in the [US Senate](#), and the White House is redirecting funding from other public health concerns to compensate.