

The West Nile Seasonal

How does 2017 look?

Predictions for statewide risk in 2017, made on July 17th, are displayed below in Figure 1. Currently, we estimate that 58 cases are most likely for the year. This is down only slightly from the previous week's estimate of 61 cases, and this difference is due to another week's worth of low humidity and negative mosquito pools from most counties and cities.

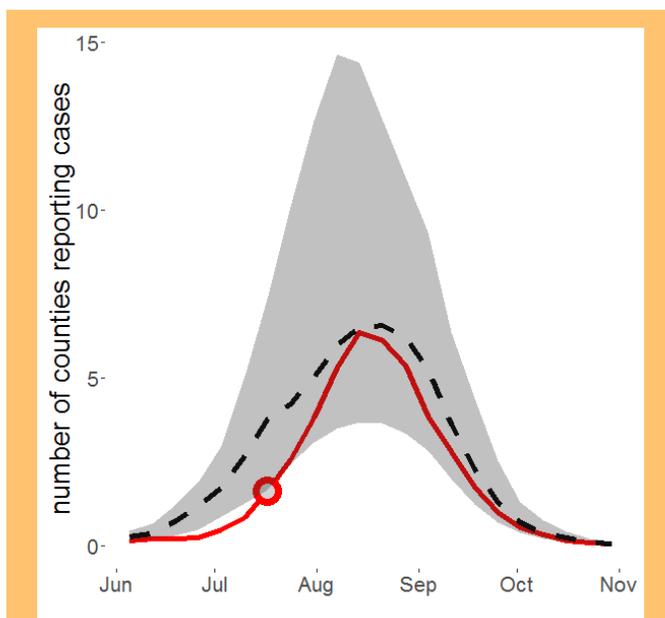


Figure 1: Estimated risk for 2017 (red), with average risk in other years (dashed) and 50% CI for historical risk (grey). July 17th is circled.

Unfortunately, we have some evidence that the trend of dry weather may begin to reverse itself. That National Weather Service now projects that precipitation over the [next three months](#) will slightly exceed historical averages.

This may reactivate the WNV system in South Dakota, which has been held in check in 2017 by hot, dry weather inhospitable to the mosquito. In a study [of WNV in Florida](#), drought for 2-6 months followed by a period of precipitation was associated with increased WNV transmission to humans.

South Dakota differs from Florida in a number of important ways; for example, the vector in Florida (*Culex nigripalpus*) is a floodwater mosquito that responds rapidly to heavy precipitation, while our vector (*Culex tarsalis*) does not always respond positively to rainfall. Yet, this year, wetter weather will hardly hurt a mosquito's chances.

We see two distinct possibilities, then - either this will be a slightly lower-than-average year for WNV in SD, or the trend of dry weather will reverse itself and we will see a sudden increase in cases towards the end of the season.

Neither case is especially good news - substantial transmission is still expected even if the case count is lower than average this year, and we are not seeing anything in the data to indicate that 2017 will be like 2011, for example, in which only two cases were diagnosed.

How are the mosquitoes?

Current data indicates that around 1.5% of pools are positive for the virus, which is slightly lower than usual for this point in the year. Positives are due to two counties - Brown and Lincoln - and all other reporting counties have reported only negative pools.

It is entirely possible for a county to test a substantial number of pools, find that they are all negative, and nevertheless see human cases. For example, Lake County had 60 negative mosquito pools in 2015, no positives, but still had a human case. Butte County similarly had 45 negative pools in the same year and also a human case. That was a lower-than-average year with 40 cases reported to the CDC, and 2016 is expected to have more than that.

While it's possible that these infections were contracted in other counties and diagnosed closer to home, it's more likely that WNV-infected mosquitoes are present but were not collected in traps.