SOUTH DAKOTA MOSQUITO INFORMATION SYSTEMS Week of August 29, 2016

The West Nile Weekly

SUMMARY: Seven to seventeen counties are expected to report human cases in the week of August 29th - September 4th. By Sept. 4th, we should be 4/5 through the WNV season. Estimated risk has begun to decline due to unexpectedly cool days, and risk will be lower than earlier predicted if it stays cool.

How are the mosquitoes?

Culex tarsalis have continued their recovery from a slight dip and average collections are higher now than in most years, at 30 per trap night (Figure 1). The nuisance *Aedes vexans* have fallen to around 20 per trap - at the height of the season, this was nearly 200, and the species is now absent from some traps.

On August 18th, there have been 139 positive vector pools and 52,828 mosquitoes tested since the beginning of the year, and the MIR is estimated to be 2.6 positive mosquitoes per 1,000 tested.

This is the same infection rate as last week, but we do not believe that mosquito infections will begin to dwindle straightaway. We suspect there will be a resurgence in mosquito infection rates similar to the resurgence in vector abundance. Both were temporarily depressed but will rally before the WNV season truly begins to end.

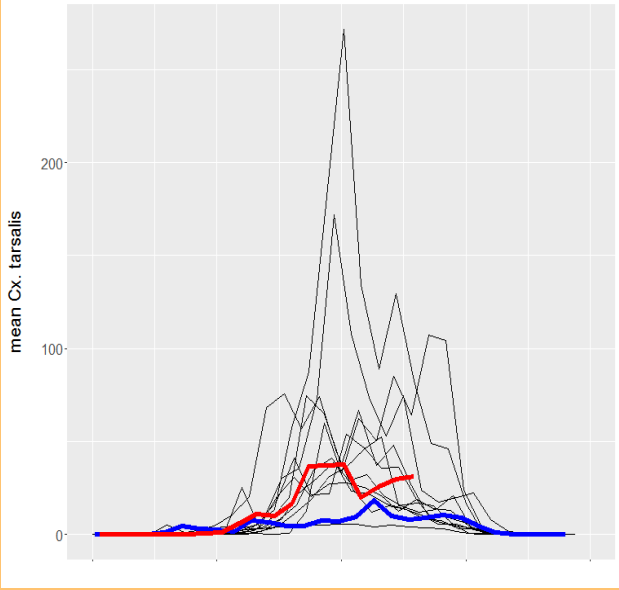

Figure 1: Statewide average *Culex tarsalis* collections in 2016 (red), 2012 (blue), and all other years (black).

We are most concerned by Brookings Co., in which the MIR for 2016 is 4.1 positive vectors per 1,000 tested, and 8.9% of pools tested have been positive. This county has reported 505 samples, so this is not a fluke of small numbers. For comparison, 6.3% of Brown's 694 samples have been positive, and the county sits at an MIR of 2.3 per 1,000 tested.

What to expect?

Last week we estimated that 16.8% of all counties would report cases; for the week of August 29th - September 4th, we've fallen slightly to 16.7%, and expect 7 to 17 counties to report cases. The maps in Figures 2 and 3 have been essentially stable for the past few weeks, because temperatures had been essentially stable. However, very recent temperatures have fallen faster than expected, which is good news for human cases in the weeks that follow.

Historically, 9% of cases occur in the week of August 29th - September 4th. Of all cases, 85% tend to occur before August 28th. By Sept. 4th we will probably be 4/5 through 2016's WNV season. We estimate that there will have been at least 90 cases in SD in 2016 by September 4th. Our estimate of total cases in SD in 2016 has fallen to .

In the outbreak year 2003, by Sept. 4th there were 303 cases. In 2012 and 2015, 36 and 14 cases. respec-

tively According to the SDDOH update on August 24th, 64 cases have been reported in 2016.

We continue to urge that any resources available for mosquito control be used where appropriate, and that individuals continue to take reasonable precautions.

What's going on elsewhere?

The USGS/CDC WNV map has been updated. As of Aug. 18th there had been 232 cases reported to ArboNET. The map in CA shows widespread transmission among mosquitoes, birds, and humans. Their current human case count (46) is just below their five year average (49) for this point in the year, but dead birds, mosquito samples, and sentinel chickens all exceed historical averages.

There are two reports of WNV cases requiring hospitalization in IA and the state epidemiologist suspects this bad year may be worse than last. Although there are no human cases yet in CT, mosquito infection rates are rising quickly. A woman in her 70s is reported to have died of WNV in WA.

It should be kept in mind that human cases are reportedly more slowly than mosquito and bird counts. Many cases will only be recognized and reported long after infection, and final numbers will be higher. That said, CA is probably actually above average.

Flooding in LA is likely to worsen WNV risk. After Hurricane Katrina in LA in 2005, there was more than a twofold increase in human WNV cases. While the current disaster is less widespread, the lesson is the same: excess water creates temporary breeding pools and displaced humans may be more exposed to risk.

Zika has officially begun circulating locally in Cuba, which had put off the virus for longer than its neighbors. The island had put into place a system of surveillance, preemptive response, screening, and education after a dengue fever outbreak in the early 80s.

While SD has seen its first imported Zika case, we do not believe there is any threat of local transmission, but still need to keep an eye on Zika. For example, our national government is (heatedly) debating funding for prevention of and response to a mosquito-borne illness.

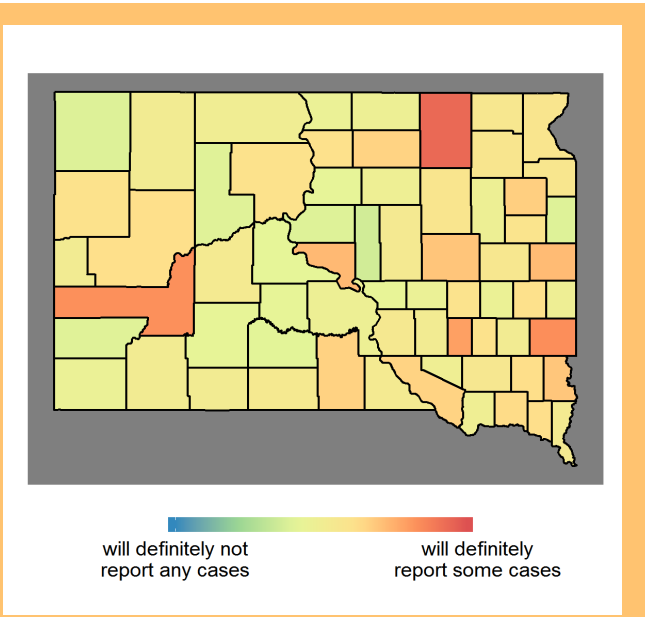

Figure 2: Estimated per-county risk for the week beginning Aug. 29nd. Brown County has a 2 in 3 chance of reporting at least one case.

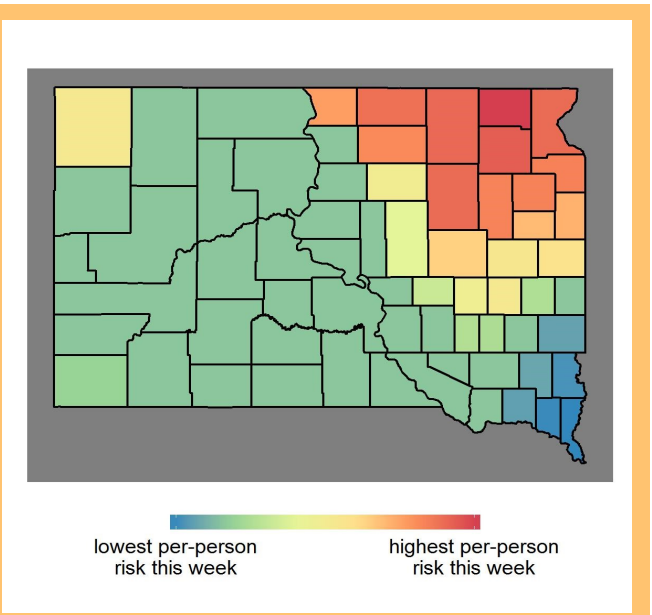

Figure 3: Estimated per-person risk for the week beginning August 29nd, still mostly concentrated in the Prarie Pothole Region.

As individuals involved in public health and mosquito control, we note that Zika may have an impact on our work that is not directly related to the threat of the virus itself.