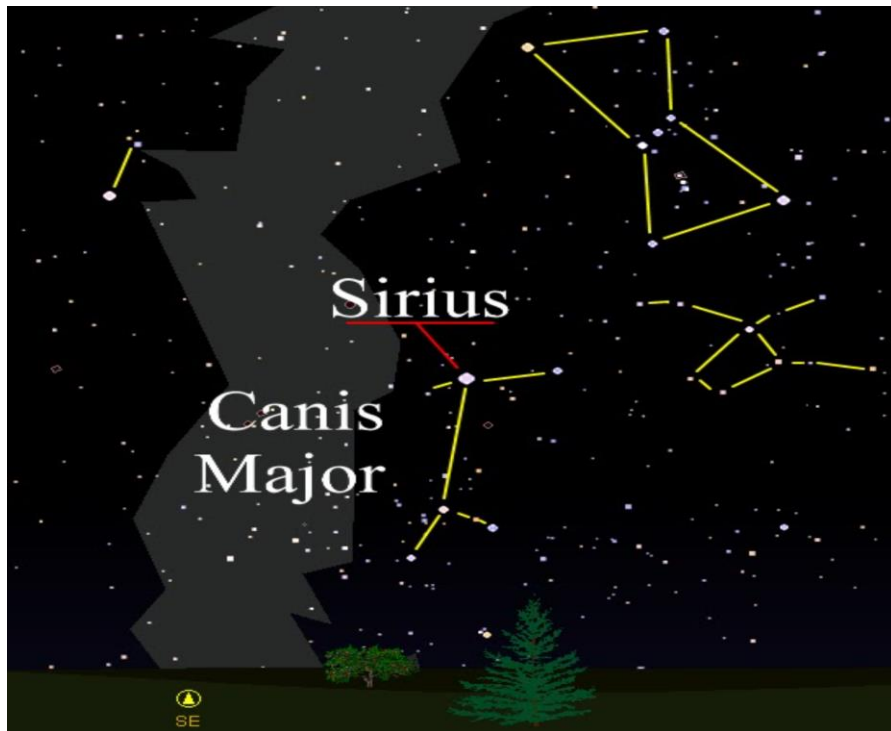


STANDARD DEVIATIONS: Dengue, It's Hot!

Greetings,

Here we are in the dog days of summer. The phrase comes from the star Sirius, the Dog Star, rising prominently in the summer sky. You can find it by following the belt of Orion downward to one of the brightest stars in our sky. Greeks and Romans recognized its appearance to coincide with the heat of summers and Egyptians noted its relation to the flooding season of the Nile.



How hot has it been this summer? Last week saw record high over-night low temperatures for several Utah towns. And around the Northern Hemisphere, records have been broken for heat in places that have never seen such extremes.

One species you won't hear complain about the heat is mosquitoes. Already the deadliest animal mankind has ever known, climate change is increasing their habitat and that makes them even more of a threat. Of course, it's not the bug but the organisms that have found the mosquito to be the perfect vector for their life cycles that cause such concern.

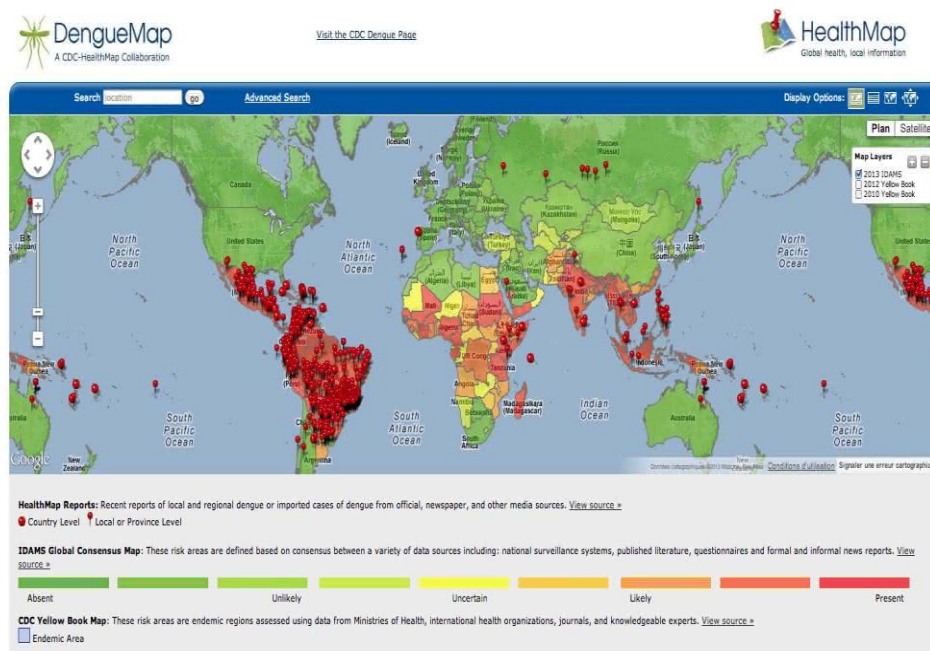


Malaria and Yellow Fever are zoonotic diseases that we've known about for centuries. West Nile Virus, and Zika have been pestering us lately. Now, another virus is poised to become the new bully on our block.

Dengue virus is all the buzz. Already causing havoc in temperate climates, as conditions change in its favor, it is going to be a thorn in our side, a burr under our saddle and an itch we'll have to scratch.

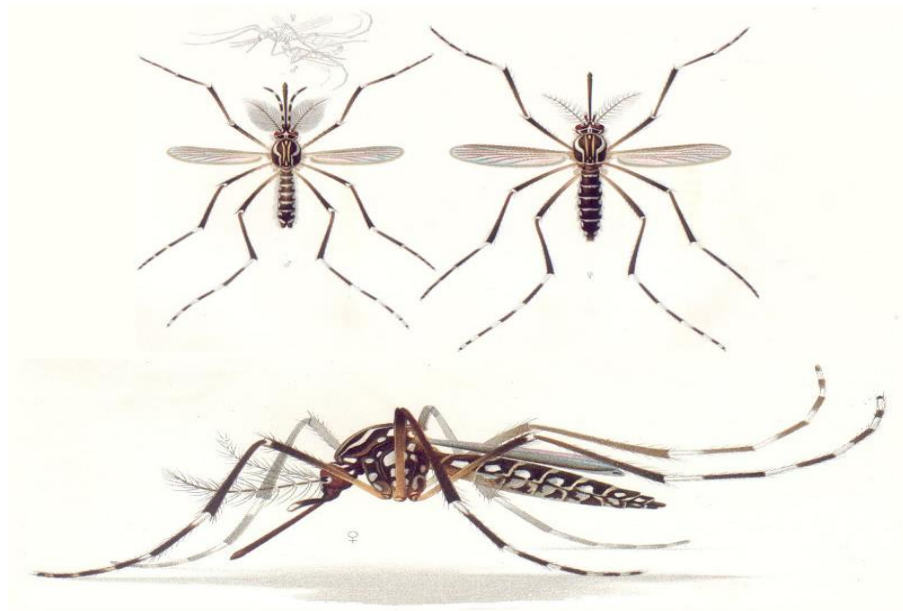
Dengue fever (DF) is caused by any of four closely related viruses, or serotypes: dengue 1-4. Infection with one serotype does not protect against the others, and sequential infections put people at greater risk for dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS).

Today about 2.5 billion people, or 40% of the world's population, live in areas where there is a risk of dengue transmission. Dengue is endemic in at least 100 countries in Asia, the Pacific, the Americas, Africa, and the Caribbean. The World Health Organization (WHO) estimates that **50 to 100 million infections occur yearly**.



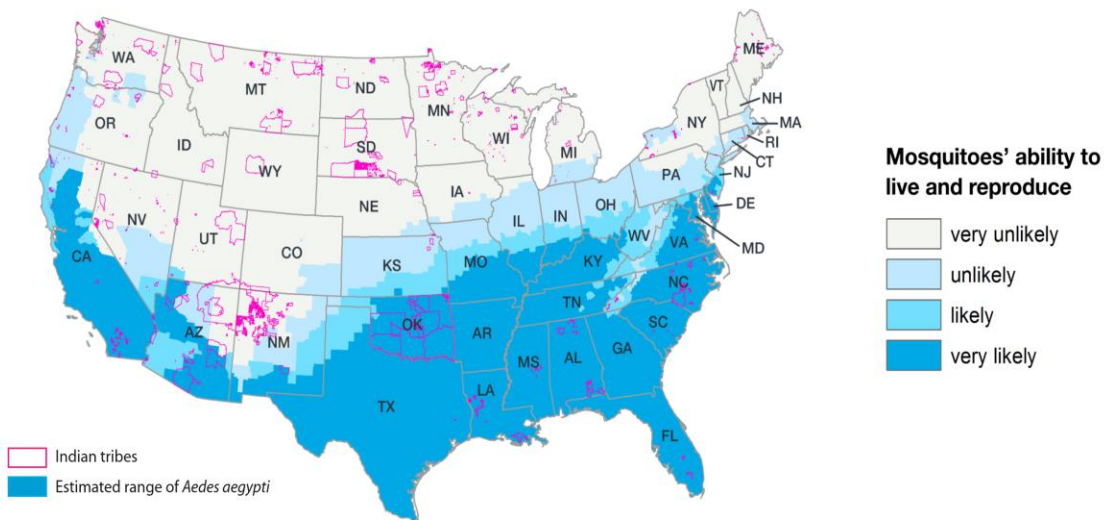
Dengue is transmitted between people by the mosquitoes *Aedes aegypti* and *Aedes albopictus*, which are found throughout the world.





Aedes aegypti (a vixen in striped high heels)

Migration of the virus will encompass the entire range of the *Aedes* mosquito, one blood meal at a time. This year has already seen local transmission in the Miami-Dade area and the Keys of Florida have seen transmission for several years.



(2017 estimate of *Aedes* distribution)

As the world changes, the range of these little beasts also changes. Warming seasons and especially warmer low temps provide new range for the mosquito to breed effectively.



The latest dengue research reveals that within approximately 60 years, the risk of dengue will grow to such an extent that it will put at risk more than 6 billion people, due to population growth, climate change, and increased urbanization.

Climate change will open North American, European and Asian range as habitat. Urbanization trends in areas where the mosquito is already endemic will simply entrench it in denser populations.

Mosquitoes are believed to be responsible for killing 55 **billion** humans over our history; **half of all people ever** born. Dengue is just one of the viruses and opportunistic organisms to ride those small wings into our nightmares.

Next week I'll scratch a little harder to relieve your curiosity itch about this up-and-coming arbovirus.

Have a great week and be safe,

Bryan

