1) Abstract. Lead author/presenter is an undergraduate.

Martz[1], CA, A Vela[1], and K Lyberger[1]. *Microclimates of Culex mosquitoes in desert regions.*

Culex mosquitoes are important vectors of West Nile virus, and, as small-bodied ectotherms, are sensitive to temperature. This is especially important for juvenile stages which are confined to the body of water where they hatched and are unable to relocate for thermoregulation. In an urban desert like Maricopa County, Arizona, the macroclimate is strongly influenced by the urban heat island effect where larval thermal maxima are frequently exceeded. Understanding the local temperatures (microclimates) of sites that mosquitoes chose for egg-laying and larval development is important for managing mosquito populations and reducing disease risk. We deployed small temperature loggers at multiple breeding sites throughout the city and compared those temperatures to gridded reanalysis macroclimate data. We found that the recorded aquatic microclimates were consistently cooler than corresponding macroclimates, and that higher canopy cover further buffered hot temperatures. This suggests that using interpolated macroclimate data to estimate mosquito population dynamics overestimates the thermal stress local mosquitoes actually experience. By using microclimate measures we can better predict mosquito survival and development, allowing us to better understand disease risk both now and with future warming.

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2) Citation. Chloe A Martz, Alex Vela, Kelsey Lyberger. Microclimates of Culex mosquitoes in desert regions.

3) In which of the five CAP V Interdisciplinary Research Teams (IRTs) your research

best fits (more than one is acceptable):

• Adapting to City Life

• Urban Climate and Air Quality