Understanding *Aedes japonicus japonicus* distribution in container habitats

Katherine Demeuse (demeusek@msu.edu) and Michael Kaufman. Michigan State University, East Lansing, MI.

Aedes japonicus japonicus is an invasive mosquito species, first detected in the United States in 1998. There is evidence that the species has displaced native mosquitoes in some larval habitats, such as artificial containers and rock pools. However, although *Ae. j. japonicus* can occasionally be found in tree holes, it has not consistently become established in these habitats. Therefore, tree holes may act as a refuge for native tree hole species, like *Ae. triseriatus*, and allow species to co-exist regionally. To better understand the oviposition behavior and distribution of both species, oviposition cups mimicking tree holes and artificial containers were created for monitoring eggs in laboratory and field conditions. Initial choice experiments in the lab showed that *Ae. triseriatus* females deposited 70% of their eggs in tree hole mimic containers, compared to artificial (plastic or tire) mimic containers. Interestingly, preliminary results from a field experiment also showed that *Ae. j. japonicus* preferred to oviposit in tree hole mimic containers compared to plastic artificial containers. Further, a larval survey of tree holes in the area indicated that *Ae. j. japonicus* may be more prevalent in tree holes than previously shown. We also began an examination of the larval gut bacterial communities in the two species to determine if *Ae. j. japonicus* larvae harbor a unique gut microbiome that may also help to explain its distribution in container habitats. Initial analysis of 16S sequence data from lab and field-collected specimens suggests that container type and rearing conditions were the primary factors determining larval gut bacterial composition, and not larval species. Knowing the oviposition behavior and microbiome characteristics of the invasive mosquito, *Ae. j. japonicus*, may help in understanding its rapid dispersal and establishment into new areas and possible role in disease dynamics through interactions with native mosquito species that also utilize container habitats.