



Candidate for Asst. Professor of Mosquito Biology/Ecology position:

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Date: Monday, October 3, 2022
Time: 4:00 pm - 4:50 pm
Format: In-Person Seminar & Virtual Access
Location: Genomics Auditorium 1102A
Zoom: 938 1040 4405
Passcode: 833289

Title:

“Where they breed determines how they bite: mechanistic links between larval ecology and host-seeking behavior in mosquitoes”

Abstract:

Mosquitoes are important vectors that claim about a million lives every year worldwide by transmitting a range of diseases. As larvae, they occupy diverse habitats and are influenced by many ecological factors that will, eventually, impact their adult life. Interestingly, the magnitude of these effects differs between males and females. Female mosquitoes show remarkable plasticity of body size in response to environmental variability. Also, body size in females strongly correlates with their adult behavior and reproductive traits. To explore the influence of larval ecology on adult behavior, I varied the levels of intraspecific competition and quantified how larval conditions impacted the olfactory responses of adult females seeking hosts for blood. My results suggest that host-seeking preferences are strongly linked to variations in female body size and mating status. Pursuing the molecular mechanisms modulating the links between female body size, mating status, and host-seeking, I analyzed the head transcriptome of large and small-sized females, both virgin and mated. The results revealed differences in expression profiles of genes linked to the onset of host-seeking and olfactory sensitivity. In my talk, I will discuss a novel multi-threaded approach that compares the gene transcripts' co-expression levels to identify 'hub genes' whose expression states likely mediate the links between larval ecology and adult host-seeking in mosquitoes. Using these results from the transcriptomic analysis, I am pursuing electrophysiological investigations to understand the neural bases of the observed size and mating status-dependent variability in mosquito host-seeking behavior. Finally, I will discuss these results in the context of mosquito population dynamics and the ensuing disease consequences