The Effect of the Urban Heat Island on the Mating System of the Western Black Widow Spider (*Latrodectus hesperus*)

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Urban developments are rapidly encroaching into natural habitats, leading to local extinctions and biodiversity loss. However, some species thrive in these niches, despite rapid changes, in part through behavioral plasticity. Behavioral plasticity allows animal behaviors to quickly adjust to environmental perturbations. One such perturbation is the urban heat island (UHI) effect; wherein man-made structures replacing natural soil and vegetation, collect the sun's heat and cause higher temperatures throughout the day and night. An animal's ability to respond to the UHI effect is one of the many factors determining their survival in urban environments. Understanding UHI's impact also allows us to better conserve local biodiversity and predict future losses due to climate change worldwide.

Our understanding of urban evolution and ecology is only just beginning. Many physiological and behavioral responses to urbanization and temperature change remain uninvestigated. What research there is focuses largely on foraging behavior and an investigation of UHI effects on sexual behavior is desperately needed. Sexual selection acts alongside natural selection, and even though its mechanisms may be more subtle, it is equally influential. Studying sexual behaviors illuminates how this powerful force of evolution operates in urban contexts. Our goal is to fill the gap and determine the role UHI and temperature extremes play in the sexual selection processes. To do so, we will take advantage of a species famous for its mating system, western black widow spiders, *Latrodectus hesperus*. We will investigate differences in survivorship, development, and sexual behavior to create one of the first comprehensive data sets of urban heat as a sexually selective force.