

Title: Control, Context & Choosiness: Flipping the lens to see female plasticity in widow spiders

Abstract: Adaptive developmental plasticity (ADP) may evolve when traits that confer reproductive success vary with context, and context is indicated by cues available during development. ADP cues trigger developmental changes, resulting in phenotypes matched to the challenges experienced as adults. We have shown that demographic variation (social context) shifts the form of sexual selection on male *Latrodectus* spiders in nature, and that male life history changes in response to demographic cues, conferring higher fitness. For short-lived *Latrodectus* males, this outcome is adaptive. For longer-lived *Latrodectus* females however, ADP of life history seems unlikely. However, for females, social context during development may predict optimal levels of adult choosiness (~the likelihood of expressing a mating preference). We studied ADP in female *Latrodectus hesperus* and *L. hasselti* by simulating natural exposure to cues of future mate availability. Females exposed to cues of high mate availability as juveniles showed increased mechanisms of choosiness in their first mating as adults. This included shifts in mating plug placement, premature cannibalism, and copulation frequency, all of which provide female control over post-copulatory sexual selection. In a related study of *L. geometricus*, we show that females that retain control in their first mating are choosy when remating. Plasticity in female mating preferences for male traits is affected by juvenile social experience in other species. This work extends understanding of ADP shaping female choice to encompass choosiness. We illustrate the complex ways ADP links population characteristics to sexual selection and support *Latrodectus* as a model clade for studies of plasticity.