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Context-dependence of pre- and postcopulatory sexual selection in *Drosophila prolongata*

The strength of sexual selection is thought to be driven by population density and the operational sex ratio due to their influence on the absolute and relative encounter rates between sexual competitors and potential mates. Both population parameters may themselves be influenced by the abundance and distribution of important resources and the degree to which they can be monopolized by certain individuals of the population. However, empirical studies on the relative contributions of these factors to the strength of, and covariation between, pre- and postcopulatory sexual selection are currently lacking. Here, we experimentally manipulated the density and composition of populations of individually marked *Drosophila prolongata* that were allowed to interact freely in artificial arenas with uneven distributions of dietary and oviposition substrate. Across five days, we monitored the context-dependent distributions of flies (e.g. monopolization of resources), social interactions, and individual mating frequencies and combinations. We then assigned parentage to the offspring to disentangle the effects of these social dynamics on both pre- and postcopulatory fitness outcomes. *Drosophila prolongata* is unusual among drosophilid flies, in that males are larger than females and exhibit exaggerated forelegs that they use in male-male competition and elaborate courtship displays, and they can employ alternative reproductive strategies to gain matings. Further, females vary substantially in their mating frequency, thereby causing considerable variation in the level of postcopulatory sexual selection.