

# Scramble competition and sperm competition in a sexually cannibalistic praying mantis

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In species where males do not actively fight for access to females, competition between males largely consists of a race to locate their mates (scramble competition) and to fertilise their eggs (sperm competition). Scramble competition polygyny is perhaps the most common mating system in insects, and yet the factors influencing its evolution are largely unstudied. The sexually cannibalistic praying mantis, *Pseudomantis albofimbriata* exhibits a polygynous mating system, and females are highly cannibalistic, consuming approximately 40% of males encountered. In this species, both scramble competition and sperm competition therefore interact with the cannibalistic nature of females to determine the optimal mating strategy for males. Here, I will describe some recent research on *P. albofimbriata* demonstrating (a) last-male sperm precedence and (b) greater attraction to unmated females. I also show that when males are kept under conditions of high perceived risk of competition, they (b) develop to maturity more slowly, and (d) transfer larger ejaculates. Together, these results show that different components of male competition can interact in intriguing ways to determine the strategies that males use to maximize reproductive success.

