Male banana fiddler crabs may coerce mating by trapping females in tight burrows

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A male *Uca mjoebergi* fiddler crab signaling to anapproaching female next to his burrow. Credit: Tanya Detto, Copyright Pat Backwell

While male banana fiddler crabs (*Uca mjoebergi*) in Australia typically court females, some may coerce mating by waiting for females to enter their burrows and then trapping them there, according a study published June 15, 2016 in the open-access journal *PLOS ONE* by Christina Painting from The Australian National University, Canberra, and colleagues.

Males can acquire mates by competition, courtship—or coercion, a strategy found in animals from insects to mammals. In some crab species, a male may pin a female to the ground or grab and hold her in place. Based on observations of banana fiddler crabs in Darwin, Australia, over two mating seasons, the authors of this study propose that males of this species may coerce females to mate via another tactic: trapping them in tight burrows.

Competition for mates is fierce in banana fiddler crabs, and a female may consider up to 20 males before making her choice, which is based on multiple traits including body size, claw coloration, and claw waving. Usually, the male enters a burrow first and the female follows but, in some instances, a courting male steps aside rather than entering his burrow first. However, in this situation, most females then decline to enter, making the researchers wonder why males sometimes adopt this strategy.

The answer, they suggest, is that some females do enter first and when a male enters second, mating is more likely to occur than when the order of arrival is reversed. Females that entered first were also more likely to lay eggs than those that entered second, which the authors suggest may indicate that females that entered first were trapped and coerced into mating. Thus, even though males that step aside from the burrow entrance entice fewer females to go in, this strategy may pay off in a higher rate of mating than when these females enter second and are free to leave without mating.

Author Patricia Backwell notes: "Mate-searching female fiddler crabs are fussy about the quality of a male's burrow, so they enter it to check its suitability as an incubation site before selecting the male as a mate. Some males trap the female inside the burrow, coercing them to mate."

More information: Painting CJ, Splinter W, Callander S, Maricic T, Peso M, Backwell PRY (2016) Ladies First: Coerced Mating in a Fiddler Crab. *PLoS ONE* 11(6): e0155707. DOI: 10.1371/journal.pone.0155707

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