Cuttlefish males prefer mysterious mate, on-heat females available

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Credit: Professor Roger Hanlon

A new study has investigated the mating preferences of the giant Australian cuttlefish, finding that females were most receptive if they had not recently mated, while male cuttlefish demonstrated a preference for unfamiliar females.

This research suggests that distinct selection pressures may be driving different discrimination capabilities in the sexes, and provides the first empirical evidence of familiarity discrimination in a cephalopod species.

"The giant Australian cuttlefish, Sepia apama, seek multiple mates during breeding, yet the discrimination tactics used to assess mates are still unknown," said lead researcher Alexandra Schnell.

"Many animal species choose amongst potential mates in a highly selective fashion, exhibiting strong preferences for specific mates and ignoring others.

"Choosing a mate can be an iterative process, which involves signalling by both sexes, assessment of mate quality and making a decision to mate or to seek other reproductive opportunities."

The outcome of mate choice may depend on a series of assessments, including:

- Sexual receptivity
- Mating history
- Familiarity of a potential mate.

The research team combined field observations and laboratory-controlled mating experiments to test the effects of female receptivity, mating history and familiarity on mating behaviour.

Female mating history appeared to predict their likelihood of mating, because female cuttlefish that had not recently mated were more likely to perform receptive behaviours and less likely to express non-receptive signals. Familiarity with the males did not affect female receptivity.

In male cuttlefish, mated behaviour was not affected by female

receptivity; however, familiarity with the female did affect male mating behaviour. Males exerted a strong preference for unfamiliar females, providing evidence of familiarity discrimination.

More information: Schnell, A; Smith, C; Hanlon, R; Harcourt, R. "Female receptivity, mating history, and familiarity influence the mating behaviour of cuttlefish", *Behavioural Ecology and Sociobiology*, November 2014.

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