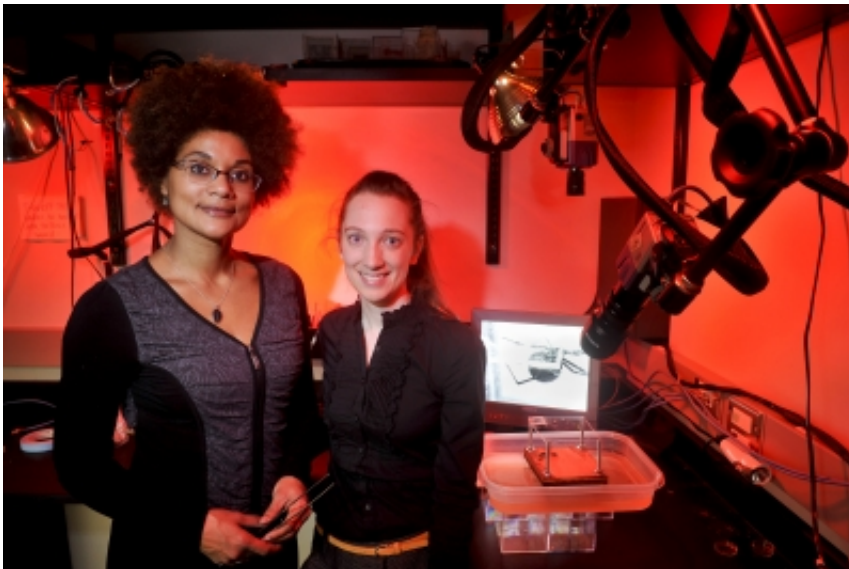


Picky male black widow spiders prefer well-fed virgins

April 23 2014, by Don Campbell



Male black widow spiders overwhelmingly prefer their female mates to be well-fed virgins, according to new research from UTSC professor Maydianne Andrade and PhD student Emily MacLeod. Credit: Ken Jones

New University of Toronto Scarborough research shows that male black widow spiders prefer their female mates to be well-fed virgins – a rare example of mate preference by male spiders.

The study, authored by UTSC post-doc Emily MacLeod and Maydianne Andrade, a professor in UTSC's Department of Biological Sciences, found in both controlled field studies and the wild that [males](#)

overwhelmingly chose to mate with well-fed, unmated females. They also found male black widows can tell whether a potential mate is well-fed and unmated by pheromones released by females.

"This near unanimous preference by males for well-fed mates using only pheromonal cues has not been documented in any other spider species," says MacLeod. "These are not visual or auditory cues they are picking up but smells they are sensing, often from far away."

MacLeod says the reason males show a strong preference for females who smell like they've eaten a lot is that mating with a fatter female may result in more offspring than with less well-fed females.

"Females who have been able to eat a lot and obtain a lot of food resources can transfer those resources into egg production," says MacLeod. "It's not just that they are healthier but that they are more fertile because they can produce more egg sacks."

Another reason for male choice may be a simple matter of survival. "It's important to remember that when a female eats a lot of prey, she's less likely to eat a potential mate," says Andrade.

The study focused on *Latrodectus Hesperus*, a species of black widow native to western North America including parts of Canada. These black widows are not generally cannibalistic but males are much smaller than females, meaning if a female is hungry her drive to feed will be greater than her drive to reproduce. "If you have this little food item dancing on a web you may as well eat it if you don't have energy to produce eggs," adds MacLeod.

The existence of male choice in nature is unusual because of the costs associated with being picky. In a lab environment [male spiders](#) can afford to be choosy, but in nature there are risks in spending time,

energy and resources finding a mate, says Andrade.

The study also shows there may be more involved to mating preference than a mere matter of what's available. "It shows that males aren't just promiscuous sperm packages, in fact they can go to great lengths to exercise choice in a mate," says MacLeod.

Provided by University of Toronto

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