

Copper butterfly folds wings to avoid unwanted male advances

June 2 2011, by Bob Yirka



Lycaenidae - *Lycaena phlaeas*. Image: Ettore Balocchi/Wikipedia.

(PhysOrg.com) -- In a move that females of any species would likely recognize, the small copper female butterfly has evolved a strategy of dissuading amorous males that is both effective and energy conserving; she simply closes her wings whenever they come near.

Japanese associate professor of [ecological engineering](#), Jun-Ya Ide noticed while observing the copper butterfly *Lycaena phlaeas daimio*, in the wild, that at least some of the [females](#) tended to fold their brightly colored [wings](#), or to hold still with their wings closed, whenever males of the same species flew near them (and sometimes even when [butterflies](#) from other species came by). Intrigued he devised a simple experiment to test his theory that females that had already mated were folding their

wings to ward off unwanted advances by males. In a paper published in *Ethology*, Ide describes how when he moved a model of a copper butterfly close to an already mated female, she more often than not closed her wings, or remained still if they were already closed. In contrast, virgin females showed no such behavior, indicating that the already mated females were using wing closing as a means to dissuade males from noticing them.

Since copper [butterflies](#) mate but once in their lifetime, the move makes sense for both genders; the females go un-harassed which helps to ensure their survival and allows them to conserve energy, and the males avoid wasting time and energy on already mated females, allowing them to go after just the virgins, which helps to ensure that all females in any given area are mated.

Dr Ide also noted in an interview with the [BBC](#), that over-exuberant [mating behavior](#) by males can actually harm females, damaging their delicate butterfly parts, so the wing closing is not just a way to fend off sexual advances, but a means of physical protection as well. He also pointed out that his observations in the wild, showed that the female technique actually worked, those females that closed their wings and remained still, were subjected to less harassment than did those who did not close their wings, and thus likely lived far happier, healthier and less stressful lives as a result.

More information: Avoiding Male Harassment: Wing-Closing Reactions to Flying Individuals by Female Small Copper Butterflies, Jun-Ya Ide, *Ethology*, DOI: 10.1111/j.1439-0310.2011.01912.x

Abstract

Males of many butterfly species persistently court and attempt to mate with females even if the females reject courtship. This male harassment almost certainly has negative effects on female fitness. Therefore,

females have likely evolved strategies to avoid such encounters. To investigate the harassment avoidance strategy of females of the small copper butterfly, *Lycaena phlaeas daimio*, I observed the reactions of females to other individuals flying nearby in the field. In response to the conspecific butterflies, females closed their wings if they had previously been open and did not exhibit any action if the wings had been closed. Females that closed their open wings in response to a conspecific received fewer mating attempts than did females that held their wings open. These results indicate that the wing-closing behaviour of *L. phlaeas* females functions to deter male mating attempts. The wing-closing reaction occurred primarily in mated females. Because females of *L. phlaeas* copulate only once during their lives, this behaviour is not considered an indirect mate choice but rather an attempt to avoid persistent mating attempts (i.e. sexual harassment) by males.

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