

Researchers discover new male variant of bulb mite

May 18 2018

The bulb mite (*Rhizoglyphus robini*) is a common pest of numerous crops. Male bulb mites display one of two reproductive tactics and are classified as "fighters" and "scramblers." Biologists from the University of Amsterdam (UvA) have now discovered a third variant, the "mega-scrambler," in which males are morphologically similar to females. Their results were published on 17 May in the scientific journal *Ecology*.

Kathryn Stewart and her colleagues from the UvA's Institute for Biodiversity and Ecosystem Dynamics (IBED) study ecological and evolutionary dynamics. One of their main interests is on how individuals may increase their likelihood for reproductive opportunities by adopting alternative mating tactics. Such tactics manifest through various behavioural, morphological or physiological traits.

Until now, male bulb mites have been known to display two discrete reproductive tactics: fighters and scramblers. Fighters have a thickened and sharply terminated third leg pair than can be used to fight and kill other males, while scramblers have no such armaments. "Surprisingly, during our experiments we kept noticing males that are morphologically similar to [females](#), with a large body, bulbous abdomen and slim third leg pair," says Stewart. "We named this variant the 'mega-scrambler.'"

The bulb mite is widely used as a model organism for studying alternative [reproductive tactics](#) (ARTs). "Which makes it even more surprising that this third male morphology, or 'trimorphism,' has not been noted before. It was important for us to describe this new type of

ART because it has important implications for our understanding of how organisms adapt to rapidly changing environments and population dynamics, but also because we want to encourage others to not overlook model systems that are thought to be completely described."

Now that trimorphism has been identified in the bulb [mite](#), the next steps are to study the origins and mechanisms of this [tactic](#) and to find out whether it is adaptive. The researchers will use follow-up studies to identify a possible explanation for the existence of mega-scramblers and to establish whether males mimic females as a way to copulate and avoid aggressive interactions with other males. In addition, the researchers will investigate whether mega-scramblers can produce healthy offspring and if other males are indeed less aggressive towards [males](#) who mimic females.

More information: Kathryn A. Stewart et al. Evidence for a third male type in a male-dimorphic model species, *Ecology* (2018). [DOI: 10.1002/ecy.2239](#)

Provided by University of Amsterdam

Citation: Researchers discover new male variant of bulb mite (2018, May 18) retrieved 29 June 2024 from <https://phys.org/news/2018-05-male-variant-bulb-mite.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.