

Insect 'incest' signals an end to males

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(PhysOrg.com) -- Evolution may lead to males disappearing as they are replaced by 'parasitic fathers' who infect their daughters at birth in order to mate with them.

The finding comes from Oxford University scientists studying how hermaphrodite [insects](#), such as the scale insect *Icerya purchasi*, in which the same individual produces both [sperm](#) and [eggs](#) and mates with itself, might have evolved.

A report of the research appears in the August issue of *The [American Naturalist](#)*.

'It turns out that [females](#) in these hermaphrodite insects are not really fertilizing their eggs themselves, but instead are having this done by a parasitic tissue that infects them at birth,' said Laura Ross of Oxford University's Department of Zoology, an author of the report. 'It seems that this infectious tissue derives from left-over sperm from their father, who has found a sneaky way of having more children by mating with his daughters.'

'Of course, females might not be happy about this,' said Dr Andy Gardner of Oxford University's Department of Zoology, also an author of the report. 'So, we developed a mathematical model to find out when the female and the parasite will come into conflict, and when they will collaborate over this weird reproductive tactic, to understand how it evolves.'

The researchers found that, once the infection becomes endemic, females are more inclined to mate with their parasitic fathers in this way, because mating with a close relative ensures that they pass on more copies of their genes to future generations. As a consequence, regular males disappear altogether as they struggle to find willing mates.

'But some rare males do pop up now and again,' added Laura Ross. 'We are now planning experiments with them, to recreate the ancestral state of this species, in order to test aspects of the theory.'

Provided by Oxford University

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