

# Article: Evolutionary biology: Males from Mars

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Evolutionary biology: Males from Mars  
David Queller

In an ant species – or is it two species? – females are produced only by females and males only by males. Explanations of this revelation have to invoke some decidedly offbeat patterns of natural selection.

That men and women sometimes seem like different species is the stock in trade of pop psychologists and relationship gurus. Some go even farther: men are from Mars and women are from Venus. But in reality, human sexual differences are rather small. Even a naturalist freshly arrived from Mars or Venus would have little trouble binning specimens of men with women, and not with female chimpanzees or gorillas. There are species where males and females are different enough to have fooled real earthly naturalists. But no population geneticist would be misled – males and females mix their genes in their progeny, and as a result male and female genes comprise a common, well-mixed pool. A fascinating exception to this rule is described by Fournier et al. (Clonal reproduction by males and females in the little fire ant)<sup>1</sup>. Males and females each reproduce clonally and, like independent species, follow separate evolutionary branches.

The surprise comes from the little fire ant, *Wasmannia auropunctata*, which is hardly obscure. An invasive pest in tropical habitats, it earns a place on a list of the 100 worst alien species<sup>2</sup>. Its ancestor, like other haplodiploid social insects, must have already had two other varieties of asexuality, which together set the stage for this story. Haplodiploid species produce males asexually from unfertilized eggs (Fig. 1a), so the males are haploid – they have only one copy of each gene. Fertilized eggs become diploid females with two gene copies (Fig. 1b). In social haplodiploids, environmental differences usually induce females to differentiate into one of two castes (Fig. 2, overleaf) – 'gynes' become reproducing queens (Fig. 1c), whereas workers (Fig. 1d) are not just asexual but non-reproductive; they pass on their genes only by helping to rear relatives in their colony, a process known as kin selection.

Full Text at Nature:

<http://www.nature.com/nature/journal/v435/n7046/full/4351167a.html>

Posted By  
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