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Some worker bees 'reproduce for themselves'

Many worker bees are not descended from the Queen bee, a study has shown, with some 'cheating' on her and reproducing for themselves to prolong their own lives.

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Bee colonies are renowned for their high levels of cooperation, but a study of a Brazilian species of highly social stingless bees, known as *Melipona scutellaris*, found some male bees are the sons of workers, rather than the Queen.

The bees are found throughout the Atlantic rainforest, colonies generally contain around 1,500 workers and are headed by one single-mated Queen.

The research, published in the *Molecular Ecology* journal, looked at nearly 600 males from 45 colonies to discover their parentage.

Results showed 22.89 per cent of the males were sons of the workers, rather than the Queen.

Co-author Denise Alves said that provided an ongoing conflict for reproduction.

She stated: "Surprisingly our results show that over 80 per cent of the workers' sons had genotypes that were incompatible with them being the sons of the present queen.

"This demonstrates, for the first time, how workers continue this conflict by reproductively parasitising the next generation of the workforce for their own selfish benefit."

Worker bees are usually unable to mate, but are capable of laying unfertilised eggs which can develop into male offspring.

To ensure dominance, the Queen usually eats any eggs laid by her workers.

The only benefit of workers producing their own offspring is for themselves - it allows them to live three times



Worker bees are usually unable to mate, but are capable of laying unfertilised eggs which can develop into male offspring Photo: AP

longer, meaning they have a life expectancy that almost matches the Queens.

This is because workers who reproduce do less work and don't carry out risky tasks such as foraging.

To carry out the study, the research team studied the genotypes of worker and queen bees from 45 colonies.

If a male carried a genotype that was not present in either the mother queen or her mate, then it was clear the male was either the son of an invading bee or of a worker.

Of the 576 males studied, 61 (11 per cent) could not be assigned to the Queen and were therefore definitely worker's sons.

Of those 61, 14 were sons of workers of the current queen, while 47 were the offspring of workers from a previous, superseded queen.

Ms Alves added: "These results are the first explicit demonstration that conflict over male parentage in insect societies is not just played out between the queen and workers. But shows that the conflicts may also spill over from one generation of workers to the other."

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