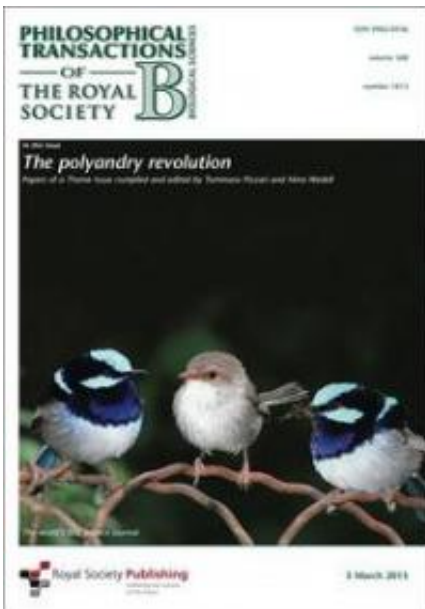


'Sexual networks' reveal complex mating game

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(Phys.org)—Social networks can be used to describe the sexual interactions in animal populations and reveal which individuals are directly competing in the 'mating game', according to new Oxford University research.

These 'sexual networks' can unlock how [sexual selection](#) operates in [animal societies](#) where females often mate with multiple males. The network-based approach could also help to study the spread of sexually-

transmitted diseases.

A report of the research appears in a specially-themed issue of *Philosophical Transactions of the Royal Society B*.

'For centuries naturalists believed that most organisms played a very simple [mating game](#) in which a subset of [males and females](#) in the population would form monogamous reproductive pairs,' said Dr Tom Pizzari of Oxford University's Department of Zoology who led the research with Oxford colleague Grant McDonald. 'Darwin identified sexual selection, the selection of this successful subset, as the agent responsible for the evolution of a bewildering diversity of extravagant traits utilised in competition over reproductive opportunities.'

Yet recent studies have undermined this simple view of sexual interactions. They show that, far from being monogamous, females often mate with multiple males – a process called polyandry – and that the sexual dynamics within polyandrous societies are typically highly-structured with [sexual interactions](#) being far from random as individuals choose and compete over mates within non-random groups.

'By using the information gained from studying 'sexual networks' we can dissect the way that sexual selection operates on a particular trait both in the local and [global population](#),' said Dr Pizzari. 'The study demonstrates that this new approach allows for more accurate estimates of sexual selection particularly at intermediate levels of polyandry. We can also use our approach to examine the spread and impact of sexually-transmitted diseases across a particular population.'

The study, entitled 'Sexual networks: measuring sexual selection in structured, polyandrous populations' is part of a themed issue of *Philosophical Transactions of the Royal Society B* edited by Tom Pizzari of Oxford University and Nina Wedell of Exeter University. The issue

shows how polyandry is emerging as a lens through which scientists can better resolve their understanding of a diverse range of ecological and evolutionary processes, from selfish genetic elements to extinction risk and conservation.

More information: [rstb.royalsocietypublishing.org ...
8/1613/20120356.full](https://rstb.royalsocietypublishing.org/doi/10.1098/rstb.2012.0356)

Provided by Oxford University

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