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Promiscuity and the evolutionary transition to complex societies.

Cornwallis CK, West SA, Davis KE, Griffin AS

Nature 2010 Aug 19 **466**(7309):969-72 [[abstract on PubMed](#)]

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Faculty Member

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Ecology

 New Finding

Comments

This is a very interesting article showing that sexual promiscuity is a key factor driving the transition between solitary and cooperative breeding in birds.

The article is based on a clear-cut prediction. The fitness reward for offspring that decide to stay in their natal group and help parents to raise further broods depends on the relatedness between helpers and their siblings. If the mother is mated with a single male, siblings will share half of their genes. On the contrary, if the mother engages in multiple matings with different males, the relatedness between helpers and siblings will decrease, reducing the reward of helping. Therefore, sexual promiscuity should prevent the evolution of cooperative breeding. Cornwallis and co-workers have tested this hypothesis using a comparative analysis across 267 species of birds. In agreement with the prediction, they found that promiscuity occurs at higher frequency in non-cooperative compared to cooperative breeders. They further looked at how the evolutionary transitions between solitary to cooperative breeding and vice-versa were affected by the level of sexual promiscuity. The results, again, show that the transition between solitary to cooperative breeding was more likely to occur in species with low level of sexual promiscuity, and that the loss of cooperative breeding was associated with an increase in promiscuity. Overall, these results highlight the importance of mating systems for the evolution of complex social systems.

Competing interests: None declared

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