
Extra pair copulation drives the evolution of sex-biased dispersal.

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Abstract

The relation between mating systems and sex-biased dispersal has been debated for three decades. Mating systems are diverse and include various levels of complexity. One can distinguish, for instance, the social mating system from the genetic mating system, as illustrated by many socially monogamous birds which are not genetically monogamous. In this study, we investigated the effect of extra-pair copulations on the evolution of dispersal in a socially monogamous context. We built an adaptive individual-based model of dispersal across a lattice and we studied the interplay between extra-pair copulations, mate choice, and individual quality, on dispersal strategy of males and females. Our simulations showed that in a female mate choice context, extra-pair copulation drives the evolution of a higher dispersal rate in females than in males. Moreover, if males dispersal strategies depend on their own quality, male dispersal evolves towards a lower dispersal rate for the best males than for males of lower quality. Our model also showed the importance of the interplay between mate choice and kin competition on the evolution of dispersal. Our results suggest that taking into account both genetic and social mating systems can be important when studying sex-biased dispersal evolution. We call to pay more attention to this question in future theoretical or empirical works.

Keywords: dispersal, sex biased, evolution, EPC, mating system, mate choice

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