

Older male blue tits out-compete young males when it comes to extra-marital breeding

April 16 2024



A female blue tit on her nest. Many females copulate not only with their own social partner, but also with one or more extra-pair sires. Under natural circumstances, these extra-pair males are typically older, experienced males and rarely one-year-old males. Credit: Kaspar Delhey, MPIBI (CC-BY 4.0, creativecommons.org/licenses/by/4.0/)

Young male blue tits are less successful in fathering offspring outside their breeding pair, not because of a lack of experience, but because they are outcompeted by older males, Bart Kempenaers and colleagues from the Max Planck Institute for Biological Intelligence in Germany report in a study published in the open-access journal *PLOS Biology*.

Many birds form breeding pairs but will also mate and produce offspring outside of that pairing—known as "extra-pair" paternity. Inexperienced males in their first year of breeding are less likely to father extra-pair offspring than adult males, but it is unclear whether their poor performance is because of competition with older males, or because of a lack of skills or experience.

Between 2007 and 2021, researchers studied the breeding behavior of a wild population of [blue tits](#) (*Cyanistes caeruleus*) living in nest boxes in a German forest, using radio-frequency identification technology, behavioral observations, and DNA testing. Then, in 2022, the team relocated almost all the adult males from the population. They compared the extra-pair breeding success of [young males](#) in this altered population with data from the previous 15 years.

In the absence of competition from adult males, 33% of young males fathered at least one extra-pair offspring, compared to just 13% on average in years when adult males were present. Their extra-pair breeding success matched that of adult males in normal conditions.



A complete clutch of a blue tit. In some nests, some of the eggs are not sired by the female's mate, but by an extra-pair male (typically a male breeding in the close neighbourhood). Credit: Lotte Schlicht, MPIBI (CC-BY 4.0, creativecommons.org/licenses/by/4.0/)

These results suggest that young males' failure to father extra-pair [offspring](#) is due to competition with adult males, rather than a lack of experience or maturity. Adult males may outcompete young males for a variety of reasons. They might fare better in fights over females, they might invest more energy in extra-pair mating, females may find them more attractive, or a combination of these factors might be at play, the authors say.

The authors add, "Our study indicates that the generally observed low

extra-pair siring success of first-year males is due to [competition](#) with older males. This age effect is thus mediated by the [social environment](#), at least in the blue tit."

More information: Schlicht E, Gilsenan C, Santema P, Türk A, Wittenzellner A, Kempenaers B (2024) Removal of older males increases extra-pair siring success of yearling males, *PLoS Biology* (2024). [DOI: 10.1371/journal.pbio.3002584](https://doi.org/10.1371/journal.pbio.3002584)

Provided by Public Library of Science

Citation: Older male blue tits out-compete young males when it comes to extra-marital breeding (2024, April 16) retrieved 2 May 2024 from <https://phys.org/news/2024-04-older-male-blue-tits-young.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.