

Age increases chance of success as two-timer

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The coal tit appears to live a strictly monogamous life. Couples often stay together for their whole lives. That's only a facade. This indigenous songbird is among the top ten two-timers worldwide. That is what research by biologists at the University of Bonn shows. For this they have taken genetic fingerprints from more than 200 breeding couples and their young. In this way they were able to identify the biological father in 90 per cent of the nestlings.

According to this research older coal tit males were particularly successful at cheating on their partner. They produced significantly more 'cuckoo kids' than younger males. The results have now been published in the journal *Behavioral Ecology* (doi: 10.1093/beheco/arm082).

Germany's most researched population of coal tits lives in a coniferous forest in Lower Saxony, in Emsland, very near the town of Lingen, to be more precise. Dr. Wolfgang Winkel from the Institute of Ornithological Research (Instut fur Vogelforschung) at the Heligoland Ornithological Station has for decades been studying the coal tits that live here. Many of the birds are ringed, so that their exact age is known. 'It really is an exceptionally good set of data which we were able to access,' the Bonn evolutionary biologist Dr. Tim Schmoll explains.

In conjunction with his colleague Professor Thomas Lubjuhn he investigated how often coal tits cheat upon their spouses and what role their age plays in this. 'For this we did paternity tests on more than 200 breeding couples and their offspring in 2000 and 2001,' he explains. With the aid of a 'genetic fingerprint' the researchers were able to match

the biological father to the nestlings in nine out of ten cases.

For coal tits are only monogamous on the surface. The partners often stay together for the rest of their life and Mum and Dad take care of their joint offspring together. But are the young really always the offspring of the father who is taking care of the brood" The genetic data tell a completely different story: 'With the primary brood in May, every third nestling is from a two-timing spouse, with the second brood in June, it's even every second one,' Tim Schmoll says. 'With the second brood coal tits are among the top 10 world wide who have 'extra-marital affairs'!"

'Greenhorns' father fewer 'cuckoo kids'

Older males succeed considerably more often in palming off a 'cuckoo kid' on their rivals than 'greenhorns' do. In their first year of breeding, male coal tits father only 0.3 'extra-marital offspring' on average. In the years after this, they manage to get almost two young per season into their rivals' nests. But in doing so, they do not neglect their own female. The success of their 'regular' procreation is not affected by trespassing on foreign territory. 'We carried out our study in two different years, in order to see whether our observations were reproducible,' Tim Schmoll explains. 'The effect of age is very significant and reliable. However, other factors such as singing, attract-tiveness of plumage or social status are probably also of significance for their success as Casanovas.

But why are the older coal tits more successful at cheating" Is this due to the fact that females tend to fall for the older seducers rather than the younger ones" The ones that survive long should have good genes, maybe these genes are therefore particularly popular. A preference of the females for more mature males would be rewarded with offspring which are particularly fitted to survive and be favoured in the course of evolution.

The study, funded by the German Research Association (Deutsche Forschungs-gemeinschaft, the DFG), does not draw any final conclusions yet. 'We presume that the male's experience also plays a significant role.' In that case, older males may well know better than 'greenhorns' when they can flirt with their neighbour and leave their own female alone safely, without running the risk that a rival will exploit this opportunity. More experienced coal tit males might also behave more rationally with the care of the brood. With their first offspring they've got their wings full, so to speak, so there's simply no time for a bit on the side.

Source: University of Bonn

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