

Who's your daddy? Infidelity and paternity in reed warblers

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Reed Warbler (*Acrocephalus scirpaceus*). Credit: Matthias Barby

Many species pair for life, or so the story goes. In reality, there is quite a bit of cheating going on. Both male and female partners may have "affairs" outside the pair bond. In such cases, how is a male to know if the chicks he's feeding are really his? Depending on the species, males have different strategies. They may try to ensure paternity by increased surveillance and fighting off the competition, or by having more

frequent sex with their long-term partners. Others react by physically punishing unfaithful females or by reducing parental care once the – potentially unrelated – offspring has arrived. Herbert Hoi and colleagues of the University of Veterinary Medicine, Vienna, together with scientists from the Slovak Academy of Sciences, Bratislava, carried out experiments with reed warblers to see how a situation of potential infidelity affects later paternal investment in the chicks and whether it does in fact lead to extra-pair mating. They found that the males aggressively try to chase off competitors and to keep potentially "double-dealing" females in line. But whether or not they manage, they turn out to be caring fathers once the babies are born.

The findings were published in April 2013 in the online journal *PLOS ONE*.

[Reed warblers](#) are socially monogamous, defend their territory, and both parents care for the offspring. Scientists of the Konrad-Lorenz-Institute of [Ethology](#) of the Vetmeduni Vienna for the first time tried to experimentally test the behaviour of reed warblers (*Acrocephalus scirpaceus*) after a potential act of "cheating" by the female. How does the male treat a competitor, and how does an "affair" affect care for the [brood](#)? To answer these questions they simulated an increased risk of adulterous behaviour in female reed warblers by briefly introducing a caged extra male to 31 reed warbler pairs during the female's fertile period. In addition they played back recorded songs of randomly selected warbler males from the area. The scientists then observed nest building activity and feeding of offspring, and determined chick [paternity](#) through DNA analyses.

When the going gets tough

From previous observations it was known that male territory owners will aggressively try to chase away intruders (conspecific males) as soon as

they detect them. This territorial behaviour is interpreted as a paternity guard. Herbert Hoi and his colleagues observed that all males tried to attack and chase away the caged intruder. When the female appeared to show interest in the intruder, the male behaved considerably more aggressively, both to the intruder and to his female partner. Almost half of the females did not even approach the newcomer. Herbert Hoi explains, "We think that the males are more aggressive when their partners are watching because first, it only pays for the male to show off when the "babe" is watching him, and second, he certainly has more reason to fear being cuckolded or even losing his partner when the newcomer approaches his female."

A "cuckoo" in the nest

Hoi and colleagues found that many nests housed nestlings fathered outside the pair-bond. This was the case both in the experimental and in the control group. Those females that had been observed to show interest in the intruder were also later found to be more likely to have extra-pair chicks in their nest. In addition, the results suggest that larger females seem to be more promiscuous.

Cuckolded males are caring fathers

The researchers then looked at whether offspring care was affected by paternity uncertainty. The results were surprising: Males seem to readily procure food for the chicks, regardless whether they are their own or not. Females, however, cared significantly less for their young if they had been faced with the simulated intruder. Perhaps the female's potential [infidelity](#) had no effect on the male's subsequent feeding investment because he cannot distinguish his own from an extra-pair chick. On the other hand, [females](#) who perceived their [males](#) as unable to repel an intruder quickly enough and therefore as a "weakling", then

invest less in the joint offspring. The only chance a male has to ensure successful paternity seems to be to quickly get rid of potential competitors.

The article is titled "Experimentally Simulating Paternity Uncertainty: Immediate and Long-Term Responses of Male and Female Reed Warblers *Acrocephalus scirpaceus*."

More information: Hoi, H., Kritofid, J. and Darolova, A. Experimentally Simulating Paternity Uncertainty: Immediate and Long-Term Responses of Male and Female Reed Warblers *Acrocephalus scirpaceus*, *PLOS ONE* 8(4), e62541, April 29, 2013.
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