

(*Poecile atricapillus*)



ScienceWatch – Careful, the Wife May Be Listening!

Male birds sing not out joy (although they may be happy) but to establish territories and gain reproductive rights by showing off their fitness. Evidently, females listen to their song and are able to determine the quality of the singer. Just how carefully they listen is shown by a study described in the May 3, 2002 issue of the journal *Science*. Female black-capped chickadees (*Poecile atricapillus*) are socially monogamous. However, Peter Boag and his team at Queen's University, Kingston Ontario, Canada, had shown earlier that the female chickadees actively solicit copulations from males ranking higher in the flock than their nesting partners. Using DNA fingerprinting of nestling blood samples the researchers showed that about one-fifth of nests contained young that were genetically linked to a male that was dominant to the nesting father. Even a few nests of females already mated to high-ranking males contained chicks related to another high-ranking male. What is it that prompts females to be unfaithful?

In their current study Boag's team gained some insight into how females choose their illicit partners. From 1999-2001 the team assessed dominance ranks in a free-living population of chickadees near the university by observing their interactions at winter feeders. At the start of the breeding season, when male-male song contests are common and females actively solicit copulations, they played tapes of male chickadees singing back to territorial males. The recordings were taken from neighboring high-ranking and low-ranking males and were played for 6 minutes.



Each treatment was performed with two neighboring males. The recording, which simulated an intruder, exhibited dominance by singing before the subject male ended his song and at a higher pitch. Alternatively, the simulated intruder exhibited submission by waiting for the subject to end his song before beginning his, and by singing at a lower pitch. In control treatments, the recording simulated an intruder that sang submissively with the high-ranking male and aggressively with the neighboring low-ranking male. In experimental treatments the simulated intruder sang aggressively with the high-ranking male and submissively with the neighboring low-ranking male.

High-ranking males that lost song contests with a simulated intruder also lost paternity in their nests. Over half the nests of these males contained chicks fathered by other males, as determined by genetic analysis on blood taken from the offspring. In contrast, high-ranking males that won their contests or were not challenged by any treatment were cuckolded at a much lower rate (10%). The team observed males immediately after playback treatments and noted no behavioral changes that might cause females to react differently. Evidently, females overhear these song contests and act accordingly.

A female mated to a high-ranking male is accustomed only to hearing her mate win song contests. It seems that once her mate loses even a brief song contest, the female searches for what she believes is a higher-ranking male and mates with him. The benefit of this

strategy for the female and her offspring is obvious. The conundrum for the male is that he should be careful whom he picks to challenge in a contest. After all he never knows when the wife may be eavesdropping!

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