

# Infidelity pays off for female Gouldian finches

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Male adult Gouldian Finch. Image: Wikipedia.

(PhysOrg.com) -- Females in socially monogamous bird species such as finches often engage in sexual activities with birds outside the pair bond. This is known to benefit males if they produce more offspring, but until now the benefits to the female have been unknown.

Biologists Sarah Pryke, Lee Rollins and Simon Griffith from Macquarie University in Sydney, Australia, studied the behavior of Gouldian finches (*Erythrura gouldiae*) in the wild and in captivity to try and find out why females are so willing to be unfaithful to their mates even though if discovered with another male the partner is likely to abandon

or reduce his half of the care of the offspring. The males are actively involved both in incubating eggs and finding food for the chicks.

With the captive birds Pryke and colleagues separated bond pairs during the [mating season](#) by removing the male from for half an hour. While he was absent from the cage they introduced a virgin male, and within a few minutes the male began making advances to the female, and the female responded.

There are three genetic variations determining head color in Gouldian finches: one producing a red head, one black, and the other yellow. Black and red-headed birds are genetically incompatible and interbreeding of the two types can produce offspring with low genetic fitness, so the researchers tried various combinations of bird with different head colors. The color of their heads also enabled them to tell which male had fathered the offspring.

The scientists also studied the behavior of wild Goudian finches in northern Australia. They are found in tropical areas of northern parts of Western Australia and Queensland, and in the Northern Territory. The Gouldians were once among the most common finches, but are now listed as endangered.

The results of the research indicated that if a female mated with a genetically compatible male he could fertilize up to 75 percent of the eggs. Dr Griffith said the female finch seems to be capable of selecting genetically good sperm somehow, to maximize the chances of healthy offspring, adding that "one copulation with good sperm is better than 30 copulations with bad sperm."

The research implies that it would pay most females to be unfaithful at times to insure against infertility or genetic incompatibility in their partners.

The next stage of the research will try to determine if the female finch is able to distinguish genetic compatibility in sperm, perhaps by some immune response, or if the more compatible sperm is simply able to penetrate the egg more effectively.

The results are published in the journal *Science*.

**More information:** Females Use Multiple Mating and Genetically Loaded Sperm Competition to Target Compatible Genes, *Science* 20 August 2010: Vol. 329. no. 5994, pp. 964 - 967.

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