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### Sex Study: Flashy Feathers Cause Female Swallows to Cheat

Brian Handwerk  
for [National Geographic News](#)  
September 29, 2005

For male barn swallows on the make, success is all about keeping their feathers in trim.

The birds attract mates by the color intensity of their feathers—a signal of their desirability. A new study suggests that if males' appearances change for the better, females are less likely to cheat.

"[Appearances] are also important for establishing sneaky pair bonds behind your mate's back," said biologist Rebecca Safran, who led the Cornell University study. "Upkeep and maintenance are just as important as the first impression."

Between two successive breeding bouts, Safran and her colleagues turned birds from duds to studs by improving their plumage color with nontoxic inks.

Birds whose feathery mojo was enhanced sired more offspring than those whose plumage remained the same. Improved males also sired more than they had in their first breeding season with the same female.

"It's interesting that birds should be doing such constant evaluation," said Olivia Judson, an evolutionary biologist at Imperial College in London. "Now a male has to not only get territory, build a nest, and seduce somebody—he's also got to keep her."

#### Choosy But Not Promiscuous

Safran's team used DNA tests to determine how many young birds in a nest were actually fathered by their mother's mate, both before and after his plumage was manipulated.

Researchers studied established pairs, allowing them to

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In a recent study of sexual behavior among barn swallows, female swallows (like the one pictured here) were likely to cheat on their mates with males whose feather colors had been artificially enhanced.

Photograph by Dave Menke/USFWS

eliminate other possible factors, like age or territory, from the mate-choosing process.

"We can say with great certainty that feather color affects female preference for particular males and that changes in the signal have really important consequences in terms of whose offspring you're caring for," Safran said.

Female barn swallows (*Hirundo rustica*) made their sexual assessments repeatedly and in a short period of time—on the fly, as it were.

Judson cautions that the term "promiscuous" doesn't adequately describe the barn swallow's sexual behavior.

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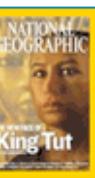
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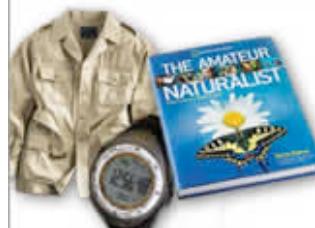
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### Sex Study: Flashy Feathers Cause Female Swallows to Cheat

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"We tend to think of promiscuous as meaning indiscriminate, but that doesn't have to be the case," she said.

"It's possible for an animal to be choosy while still having lots of sexual partners if the encounter rate with potential partners is very large. If I reject 90 percent of 1,000 suitors, that still leaves me 100 partners—even though I've been choosy."

Those males whose color stayed the same between breeding bouts remained paired with the same female. However, they did end up fathering fewer of their mate's offspring.

"In some cases males are willing to stick around and care for a nest of young, none of whom are theirs. That's interesting because it's a genetic dead end for them," she said.

It's not known whether males can tell if they are caring for their own offspring or not.

#### Monogamy Myths

Selective cheating isn't limited to barn swallows. Judson noted that about 90 percent of bird species were once thought to be monogamous and only 10 percent not monogamous. Now scientists believe that those numbers are reversed.

"It's interesting how incredibly common this phenomenon of cheating is in most socially monogamous systems that we study—including humans," Safran added.

Scientists aren't sure exactly what certain traits, like a swallow's plumage color, convey to potential mates. Do they suggest that the male will be a good father, that he

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In a recent study of sexual behavior among barn swallows, female swallows (like the one pictured here) were likely to cheat on their mates with males whose feather colors had been artificially enhanced.

*Photograph by Dave Menke/USFWS*

has good genes, or that he'll be good at defending a territory? The answer is likely a combination of these or other factors.

"Darwin's dilemma in looking at the evolution of traits is why so many seem to hinder survival," Safran said. "How to explain antlers and peacock tails that seem to attract predators and hinder escape?"

"The more we learn it seems that these signals are really important for another dimension of survival—survival of the genes through attracting mates and having as many offspring as possible."

For birds, the potential benefits of such promiscuity must outweigh the potential risks.

Judson hypothesizes that jackdaws, crow-like birds that are monogamous despite many opportunities to cheat, remain faithful because they have little to gain from hanky-panky.

"It's very hard to raise any jackdaw chicks at all," she said. "So any time spent doing anything other than raising jackdaw chicks screws up the process completely."

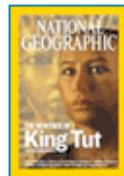
For others, like female barn swallows, there are likely unrecognized benefits that outweigh potential costs, like diseases or the risk that a male will withdraw care for offspring. Scientists are still working to understand what those benefits are.

Meanwhile, for males, it's important to keep up appearances.

"Female promiscuity creates a problem for the male," Judson explained. "Biologists [once] thought that a male should try to seduce as many females as he could. But that may not be beneficial if his primary mate cuckolds him as soon as he starts to look seedy and worn out."

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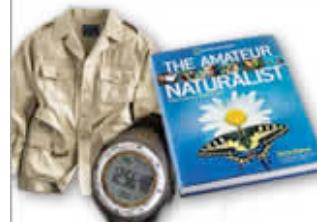
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