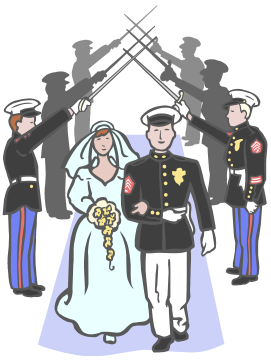

ScienceWatch – The Clothes Make the Man

"Our research shows that it really pays to keep up appearances."

It has long been thought that many bird species form monogamous, even life-long pairs. However, evidence is accumulating that seemingly loyal couples do lots of cheating.

The throat and breast feathers of male barn swallows (*Hirundo rustica erythrogaster*) vary from orange, found in subordinate males, to the reddish-brown sported by dapper, dominant males. The females, it seems, just can't resist a well-dressed male. Writing in the September 30, 2005 issue of *Science* Rebecca Safran at Princeton University, Princeton, NJ and her colleagues demonstrate that even after they have paired off and mated, female barn swallows are still looking for sexual liaisons with males that have intensely colored feathers.

As is true for other songbirds, male barn swallows often end up caring for at least one chick that was sired by another male. "They form monogamous pairs, but both males and females are willing to stray from their partners", says Safran, who studies swallow ecology and evolutionary biology. The researchers used this cheating phenomenon to determine how male coloration affects female choice (it is, of course, the female who does the choosing).

The team followed the breeding of 30 pairs in Tompkins County, NY. They allowed the females to mate and lay a complete clutch of eggs. They then removed all the eggs to induce the females to lay a second clutch. But before the females had a chance to mate again, the scientists captured all the males and randomly assigned them to three groups: 1) "enhanced" – throat and breast feathers were painted with a colored marker (light walnut) to match the dark color of dominant males, 2) "sham" – throat and breast feathers were smeared with a clear marker, 3) "control" – no manipulation.

During the second round of breeding each female remained with her original partner, but many also cheated with other males. The team knew this because they analyzed the DNA of all the embryos in the first brood, all the nestlings in the second brood and all the males to determine paternity. DNA analysis of the clutches laid before plumage enhancement showed there were no differences in paternity among the three groups of males. On average they sired about 70% of the eggs in their own nest. However, analysis of paternity in the replacement clutch showed that the "made over" males fathered a greater percentage (95%) of the chicks in their second nest than they had in the first one. Males in the two control groups were cuckolded just as often or even more than before.

Apparently, females strayed less the second time around when the plumage of their partner was enhanced and these males were sought out for illicit matings by females who had paired with duller males. According to Safran, "The study shows that the females are paying close attention to these signals and that they respond quickly to changes in their mate's appearance".

In a follow up study, just published in the June 6, 2008 issue of *Current Biology*, Safran demonstrates that testosterone levels rise significantly in males once their plumage color is enhanced. Normally, rising sex hormones cause changes in appearance and behavior. This unexpected finding shows that the reverse can also occur.

For barn swallows it seems that the clothes really do make the man.

Saul Scheinbach