

Male fairy-wrens show looks can be deceiving

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The researchers found that all male superb fairy-wrens produced and maintained vibrant colours, regardless of their 'natural quality'. Credit: Alex McQueen

In many animals, female preference for males with the most elaborate appearance is an important factor in the evolution of bright and dramatic colors.

Females are thought to prefer colorful males because only 'high-quality' males—those with the most resources, superior foraging skills or social status—can produce and maintain the most vibrant colors.

By choosing these high-quality males, [females](#) may ensure a good father or good genes for their offspring.

But do high quality males that are preferred by females invest more in their appearance?

A new study by Monash University ornithologists suggests not necessarily.

Led by Ph.D. graduate Dr. Alex McQueen, from the Monash University School of Biological Sciences the study published in *Behavioural Ecology* examined whether conspicuous colors of superb fairy-wrens signal male quality.

"We examined whether only the best quality males with excellent resources can produce the most vibrant colors and whether only the best quality males can maintain their colors in pristine condition," said Alex. "We also tested this in an experiment, by administering testosterone to some males which caused them to produce breeding colors in winter."

"Surprisingly, we found that all male superb fairy-wrens produced and maintained vibrant colors, regardless of their 'natural quality'. Also the males that had to produce breeding colors in challenging winter conditions displayed vibrant colors that were indistinguishable from other males," she said.

Every year male superb fairy-wrens change color by molting from a brown non-breeding [plumage](#) to an ultraviolet blue and black breeding plumage.

While they are in their breeding plumage, males flaunt their colors to females by performing elaborate sexual displays.

"We predicted that maintaining their colors would be especially important in this species for two reasons: first, males that are preferred by females produce their breeding plumage earlier than all other males, many months before the start of breeding, meaning that those early males display their breeding colors for the longest [time](#) each year; and second, ultraviolet blue feathers have been shown to readily fade over time in other birds," said Alex.

The research team measured the colors of the same, wild male fairy-wrens several times a year.

And they recorded how much time males spent preening when they were in their brown non-breeding plumage and colorful breeding plumage.

"We were very surprised to find that male breeding colors do not fade with time," said Alex.

"Despite keeping their colors in pristine condition, males did not spend more time preening while in breeding plumage," she said.

The research team found that instead males 'retouched' their breeding colors by replacing a few blue feathers at a time throughout the breeding season.

"Our study shows that the vibrant breeding colors of male superb fairy-wrens are unlikely to signal male quality to females," said Alex.

"We also found that [males](#) are careful to keep their feather colors in excellent condition for sexual displays."

Provided by Monash University

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