

Sexual selection isn't the last word on bird plumage, study shows

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The Gouldian finch was one of 977 species examined by UWM biologist Peter Dunn and his research partners in a worldwide study of the evolution of bird colors. This photograph shows a male. Credit: Peter Dunn

In the world of bird fashion, the guys seem to have all the fun: brighter feathers, sharper accessories, more pizzazz.

Researchers going back to Charles Darwin have focused on the contrast between the sexes, attributing the males' brighter colors to their need to attract mates.

A group of researchers at University of Wisconsin-Milwaukee took a different approach, testing a hypothesis that evolution has actually resulted in similarities among the sexes as much as differences.

Looking at nearly 1,000 species of birds, they found that while males often have brighter feathers than females, the two sexes have come closer together in color over time to blend into their surroundings and hide from predators. Natural selection - during migration, breeding in subtropical locales and care of young - is as powerful as [sexual selection](#).

"Although most studies of bird plumage focus on dichromatism, evolutionary change has most often led to similar, rather than different, plumage in males and females," the authors write.

Peter Dunn and Linda Whittingham, professors of biological sciences at UW-Milwaukee, wrote the paper with Jessica Armenta, a former UW-Milwaukee graduate student who now teaches at Austin Community College in Texas.

"Our study shows that ecology and behavior are driving the color of both sexes, and it is not due to sexual selection," they write.

The paper, "Natural and sexual selection act on different axes of variation in avian plumage color," is being published in *Science Advances*.

Armenta spent four years collecting data from 977 species of birds from six museums in the U.S. and Australia. She looked at six birds of each species, three males and three females.

Dunn and Whittingham analyzed the data, assigning each bird a color score based on scales of brightness and hue. They examined plumage color in relation to 10 measures of natural and sexual selection.

"Researchers have called for separate analyses of each sex for over a decade, but this is the first large-scale study to examine the color of each sex in relation to indices of both natural and sexual selection," they write.

When the sexes became more similar in color, they did so for reasons of [natural selection](#). When the color gap increased, it had more to do with sexual selection, they found.

Dunn hopes the findings will send future research in new directions.

"A lot of research has focused on how plumage color is related to mating success, especially in males," he says, "so this should hopefully get researchers to think more about how color affects survival, especially predation and foraging success, in both sexes."

Within the larger findings is another surprise: male birds with multiple mates actually tend to be duller in color than their female counterparts.

Male red-winged blackbirds, for example, can have up to a dozen mates but are less colorful than their consorts.

"The reason for this is that [males](#) in these species often have a lot of black plumage," Dunn says.

More information: Natural and sexual selection act on different axes of variation in avian plumage color, advances.sciencemag.org/content/1/2/e1400155

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