Birds balance sexiness and predator avoidance by changing color

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Researchers tested the evolutionary drives of seasonal colour change in birds from around the world. Credit: David Nightingale

Most birds remain the same color year-round, replacing their feathers only once a year.

But some birds undergo a seasonal color change and replace some of their feathers twice each year—often alternating between dull and bright feathers.

Now an international study led by a research team from the Monash University has discovered why.

The researchers tested the evolutionary drives of seasonal color change in birds from around the world. Their findings are reported today in, *Ecology Letters*.

The study found that seasonal color change in birds evolved in species where birds are under pressure to be colorful for sexual attractiveness but also face high predation risk, where it is better to be dull to avoid detection.

"This trade-off is a classic problem in ecology, and studying color change in birds gives insight into how animal colors evolve," said study author Associate Professor Anne Peters, from the School of Biological Sciences.

"The results suggest that seasonal color change is an adaptation that allows birds to have the best of both worlds: they can be sexually attractive and bright while breeding, but also dull colored and difficult to detect by predators outside the breeding season."

For this to work, however, birds need a defined breeding season, where it is most advantageous to be sexually attractive, as well as a non-breeding season, when it is more advantageous to be dull.

The researchers found seasonal color change was more common in birds that live in highly seasonal environments, where birds breed during periods of warmer weather or in response to seasonal rainfall.

"color change may be a useful model to test whether birds adjust their breeding schedules in response to shifting seasonal patterns," said the lead author of the paper, Dr. Alexandra McQueen, also from Monash University

"Unfortunately, if birds do not flexibly adjust the timing of color change, shifts in climate could lead to a mismatch between bright colors and the ideal conditions for breeding, with consequences for attracting mates."

More information: Alexandra McQueen et al. Evolutionary drivers of seasonal plumage colours: colour change by moult correlates with sexual selection, predation risk and seasonality across passerines, *Ecology Letters* (2019). DOI: 10.1111/ele.13375

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