

Bird's head color determines its personality

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A pair of Gouldian finches.

UK researchers have shown that highly sociable Australian birds, called Gouldian finches, have different personalities according to the colour of their heads.

The team, led by Leah Williams and Dr. Claudia Mettke-Hofmann from Liverpool John Moores University, found that red-headed birds have aggressive tendencies, while those with black heads are bold and take more risks than their peers.

This is only the second time researchers have demonstrated such a strong link between [personality](#) and colour. The only other study showed that dark, male Hermann's tortoises are both more aggressive and bolder than paler males.

"We think that head colour is used as a signal of personality to other

birds in the flock, so they know who to associate with," says Williams, who studied the birds as part of her PhD project.

Scientists first noticed a link between animals' different colours and various aspects of their behaviour such as aggression, [sexual behaviour](#) and predator-avoidance tactics in the early 90s. Red, for example, has long been associated with aggression in cichlids, other birds, reptiles, primates and even us.

But individual behaviors like aggression can only be called personality if repeatable over long periods of time.

"Earlier studies didn't look to see if these behaviors are aspects of these animals' personalities, because they didn't repeat them multiple times," says Williams.

So Williams and animal personality expert Mettke-Hofmann teamed up with Dr. Andrew King from The Royal Veterinary College to find out if colour defines personality in the endangered Gouldian finch.

"We decided to look at these [finches](#), because an Australian study had revealed that the red-headed ones are more aggressive, with red-heads dominant over black-headed finches," explains Williams.

Gouldian finches have extremely colourful plumage with either red, black, or – rarely – yellow-coloured heads. They live in open, subtropical woodland, where they nest in loose colonies, feeding mainly on grass seeds.

Williams, King and Mettke-Hofmann decided to measure three aspects of personality – aggression, boldness and risk-taking – in the finches.

They tested the birds' tendency to investigate an unfamiliar object, in

this case, bundles of string dangling from a perch, to find out how bold they were. To test for risk-taking behaviour, they presented both kinds of birds with a cardboard cut-out silhouette of a typical predator like a hawk.

For aggression, they put a feeder out for two hungry birds, with room for just one bird to eat. They wanted to see which birds would demonstrate aggressive behaviour to get at the food on offer.

They found that red-headed birds are quicker to displace each other, or display threatening behaviour with an open beak than the black-headed finches are, exhibiting a fiery personality.

They also found that birds with black heads returned to feeders after being shown the hawk silhouette much sooner than red-headed birds did, revealing a risk-taking personality. Black-headed birds were also more likely to approach and touch the string before a red-headed finch would.

"We think that having head colour reflect personality means birds can more easily choose who to associate with, and who to avoid in large flocks," says King.

The researchers say their findings may explain differences in colours. 'Colour is clearly related to behaviour. Different colours may mean each bird uses different behavioural tactics,' says Mettke-Hofmann.

"The next step is to find out which birds associate with which. Do reds hang out with reds or blacks and do they do better for that?" asks Williams.

In an earlier study, black-headed [Gouldian finches](#) assumed that yellow-headed [birds](#) whose heads had been artificially coloured red were more aggressive, so actively avoided them.

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More information: Leah J. Williams, et al., Colorful characters: head colour reflects personality in a social bird, the Gouldian finch, *Erythrura gouldiae*, *Animal Behavior*, published online 6 June 2012, doi

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