

Songbirds with unique colors are more likely to be traded as pets

September 23 2022, by Rebecca Senior



An indigo flycatcher. Credit: Zhikai Liao, Author provided

People like beautiful things. This comes as no surprise: beauty underpins highly profitable businesses, from cosmetics and art to the illegal wildlife trade, which reaps up to US\$23 billion (£20 billion) annually according to some [estimates](#).

Tigers and pandas show that aesthetic value can be an asset to [wildlife conservation](#), attracting public support and funding. On the flip side,

anything that you might want to preserve in the wild so you can look at it, somebody else will probably want to own for the same reason.

The unsustainable trade in plants and animals can rapidly deplete wild populations and put [species](#) at risk of [going extinct](#) in certain areas, or even globally.

Songbirds (birds in the order [Passeriformes](#)) are an interesting case study. This group contains the greatest number of bird species, many of which are traded and many of which are threatened with extinction.

Canaries, for example, were originally sought as pets for the beautiful music they sing. But we need only look at their striking yellow feathers to see that color—and beauty—also play a role in the popularity of songbirds.

Recent research I conducted with colleagues at the University of Florida in the U.S., the Center for the Synthesis and Analysis of Biodiversity in France and Massey University in New Zealand, [showed](#) the color of a songbird's plumage predicts the likelihood of it being traded as a pet and its risk of extinction.



A Bornean green magpie. Credit: Zhikai Liao, Author provided

Color by numbers

How do you quantify color? We started off using data on the red, green and blue values of the colors that make up each species' plumage. This is a standard way to quantify color, which readers might be familiar with from television screens, for example.

Each primary color of red, green and blue takes a value ranging from the minimum of zero to the maximum of 255. And these so-called RGB values together denote a specific color. For example, a bird with 255 red, 204 green, and 255 blue would appear pale pink.

Unfortunately, you cannot easily identify and classify colors using these RGB values, so we converted them into color categories using some simple math. We used 15 categories, including the primary colors (red, green, blue), secondary colors (yellow, cyan, magenta), tertiary colors (orange, chartreuse green, spring green, azure, violet, rose), and the additional categories of brown, light (including white) and dark (including black).



Credit: AI-generated image ([disclaimer](#))

Using a 3D graph with one axis for red, one for green and one for blue, we plotted every species according to the color of its plumage. This allows you to see how rare the colors of different species are, based on how far away their color is from others in the 3D space.

For the entire community of birds occurring in a given location, you can also look at how many colors are represented by those species based on how much of the 3D space they occupy. This we refer to as color diversity.

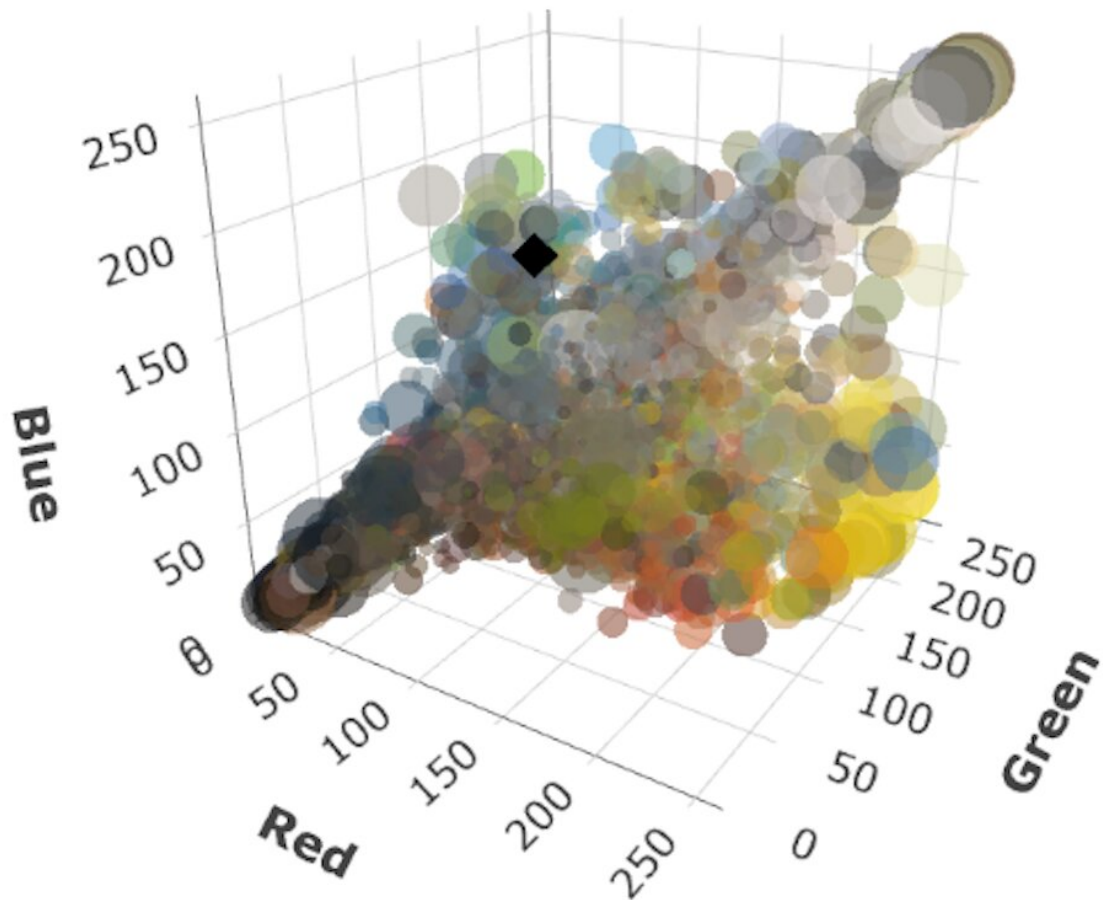
Species at risk

Our results showed certain color categories, such as azure and yellow, are more likely to be found on species that are traded than those that are not.

We believe that yellow is a common color in the [illegal wildlife trade](#) partly because there are simply lots of species that are yellow. Azure, in contrast, is a color found on far fewer species, but when it does occur it seems that it is highly likely to be on species that are heavily traded.



A fairy pitta: a ground-dweller of well-shaded forests in East Asia. Credit: Zhikai Liao, Author provided



Points are shaded by the species' colour and sized by the uniqueness of that colour. The Florida scrub jay, highlighted with a black diamond, is a uniquely coloured bird with striking blue colouring. Credit: Rebecca Senior, Author provided

Other colors, such as brown, are less likely to be found on traded species compared with those that aren't traded. Species with more unique coloration, such as pure white, have a generally higher probability of being traded.

What does this all mean for biodiversity? We identified nearly 500 additional species that are not currently traded but are at risk of being traded in future based on their color and how closely related they are to currently traded species.

Since the tropics contain the greatest diversity of colors, in terms of both the range of colors exhibited by songbirds and the number of colorful species, this is where most colors would be lost if all currently traded species went extinct. The loss of these species would mute nature's color palette, leading to generally drabber bird communities with less color variety globally.

This is just the first step in understanding the aesthetic value that underlies the trade in songbirds. A better understanding of what motivates this trade can help identify species that could benefit from monitoring and [trade](#) regulation.

Equally, identifying, celebrating and conserving hotspots of color diversity has the best chance of conserving the [aesthetic value](#) of color, as well as the overall biodiversity boasted by the tropics.

This article is republished from [The Conversation](#) under a Creative Commons license. Read the [original article](#).

Provided by The Conversation

Citation: Songbirds with unique colors are more likely to be traded as pets (2022, September 23)

retrieved 3 May 2024 from <https://phys.org/news/2022-09-songbirds-unique-pets.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.