# Birds of a Feather: Novel Plumage Colour Analysis for Subspecies Assessment of Chestnut-Winged Babbler Species Complex

Teo, Shen Han (School: River Valley High School)

Quantitative analysis of colouration in specimens has always posed to be a challenge in taxonomy, and is yet often crucial as morphological traits may sometimes reveal variations not observed in genetic studies. This paper made use of the Chestnut-winged Babbler (Cyanoderma erythropterum) species complex as a model and explored two methodologies - the 75% subspecies rule, and the CIEDE2000 colour distance method, of which the latter is a novel method in taxonomy. Given its large number of described subspecies, the species complex serves as an appropriate model to test subspecies validity using this novel approach. Results have shown that a synonymized subspecies (C. e. apega) requires re-instalment and recognition, while one widely-recognized subspecies (C. e. fulviventre) should be synonymized. This work indicates that current subspecies taxonomies of many species may remain error-ridden, especially in the tropics, and highlights the importance and viability of large-scale taxonomic revisions globally, while incorporating quantitative colorimetric approaches as described in this study.

**Awards Won:**