

APPLICATION OF BIOMETRIC MEASUREMENTS FOR GENDER IDENTIFICATION OF SRI LANKA YELLOW-EARED BULBUL (*Pycnonotus penicillatus*)

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Abstract

Sri Lanka Yellow-eared Bulbul (*Pycnonotus penicillatus*) is an endemic threatened bird, occurs in middle and higher elevations of 900-2000 m. Males and females are similar in plumage. The study was conducted in Tropical Montane Cloud Forests of Horton Plains National Park (HPNP) at Central highlands from September 2015 to January 2018. This research was conducted to develop a method to identify gender using biometric measurements. Mist netting was conducted to capture birds. Body temperature, body weight, total length, head length, head width, beak length, culmen depth, culmen width, eye diameter, ear coverts, wingspan, primary feathers length, secondary feathers length, tail feathers length, thigh length and tarsus length were measured using standard protocols. Mann-Whitney test was conducted to find out the differences of biometric measurements. Discriminant analysis was used to classify the birds, with the effective usage of variables, according to their gender. There was no significant difference between the body temperature between males and females. However, the body weight was varied significantly. There were significant variations of biometric measurements between both sexes. Males were larger in total length, head length, head width, ear coverts length, wingspan, primary feathers length, secondary feathers length, tail feathers length, thigh length and tarsus length. There were no variations of beak length, culmen depth, culmen width and eye diameter between males and females. Tail length, ear coverts and head width was applied for gender determination of *P. penicillatus*. As these measurements were not overlapped between males and females. The squared distance between groups of males and females was observed as 277.73. Discriminant score for females was = $-2165.9 + (43.8 \times \text{head width}) + (142.6 \times \text{ear coverts}) + (23.7 \times \text{tail length})$ and the discriminant score for males was = $-3162.5 + (57.5 \times \text{head width}) + (194.3 \times \text{ear coverts}) + (22.9 \times \text{tail length})$. Therefore, in this study male to female capture ratio was recorded as 10:13. Discriminant function analysis is a successful method of gender identification of *P. penicillatus*.

Keywords: biometric measurements, gender identification, Sri Lanka Yellow-eared Bulbul, endemic bird