

## **Conservational significance of Dunumadalawa forest reserve in central Sri Lanka based on the endemism of its avifauna**

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Dunumadalawa (7°17'00"N, 80°38'49"E; 548-972 m above sea level) is a semi isolated wet-zone forest reserve located on a hill ridge in Kandy. It spans across 480 ha and consists of secondary growth forest. No previous studies have been undertaken on the avifaunal diversity in this forest. Hence the present study was conducted to determine the status of the endemic bird fauna to provide pertinent information to justify the conservational importance of this forest. Field sampling was done from January to September 2015. Data were collected using line transects integrated with a point count method during the day time (peak observation hours 0600-0900 h and 1500-1800 h), and one night sampling session was conducted. Sites were specified by systematic random sampling, assigning GPS points. Sampling stations were separated by a minimum distance of about 200 m; about 15 minutes were spent at each point. Direct identification was done using 8×40 binoculars. Calls were recorded where necessary. The radial distance (m) to each bird contact from the observation point was estimated to determine the density of species using Distance software. As a control, the same procedure was conducted in nearby home gardens (50 m towards north eastward) which represent more disturbed habitat.

The present study verified that the diversity of avifauna in Dunumadalawa is comparatively higher (Shannon Index  $H' = 3.56$  and Simpson's Index  $1-D = 0.959$ ) than the nearby home gardens ( $H' = 2.98$ ,  $1-D = 0.923$ ) (t test for Shannon Index revealed that the two sites are significantly different  $p < 0.001$ ;  $t = 4.09$ ;  $df = 17$ ), consisting of 12 species out of 33 endemic bird species in Sri Lanka (36.36%) and 22 endemic subspecies out of 68 (32.35%). The Yellow-fronted Barbet (*Psilopogon flavifrons*) (65 individuals), Brown-capped Babbler (*Pellorneum fuscicapillus*) (35), Crimson-fronted Barbet (*Psilopogon rubricapillus*) (29), Sri Lanka Scimitar Babbler (*Pomatorhinus melanurus*) (14) and Sri Lanka Wood-Pigeon (*Columba torringtoniae*) (9) were the most abundant endemic species. Including them, the forest hosts nine restricted range species out of 27 (33.33%). The additional four are Sri Lanka Junglefowl (*Gallus lafayettii*), Sri Lanka Hanging-Parrot (*Loriculus beryllinus*), Layard's Parakeet (*Psittacula calthrapae*), and Sri Lanka Grey Hornbill (*Ocyrceros gingalensis*). These results highlight the relatively high endemism of avifauna in Dunumadalawa, which is a forest fragment that serves as a habitat island surrounded by highly urbanised human settlements. The forest has a high conservational significance given the presence of a considerable number of endemic species, all of which are restricted range species. Therefore we recommend that the findings from this study to be used to conduct a thorough conservation assessment to plan relevant conservation programmes.