

**Impact of Human Recreational Disturbances on the Distribution of Avifauna in the Sinharaja Forest Reserve, Sri Lanka****Alwis R.H.N.S.<sup>1\*</sup>, Perera P.K.P.<sup>1</sup>, and Dayawansa N.P.<sup>2</sup>**<sup>1</sup>*Department of Forestry and Environmental Science, Faculty of Applied Sciences, University of Sri Jayewardenepura, Nugegoda, Sri Lanka*<sup>2</sup>*Department of Zoology, University of Colombo, Colombo 03, Sri Lanka*  
*\*nilushika4u@gmail.com***Abstract**

Sri Lanka's protected areas are increasingly becoming prime tourism destinations for both international and domestic tourists. Ironically, most nature-based tourism activities are concentrated on few well-known National Parks and Forest Reserves in the country. As a result, these sites are continuously subjected to increased visitor pressure. Conservationists frequently cite human recreational disturbances of wildlife as one of the key issues in biodiversity conservation, especially in protected areas open for public visitation. Behaviour of birds has been found to be often influenced by human recreational activities; yet scientific evidences to assess the degree of this threat are limited in literature, especially in the Sri Lankan context.

This study investigated the effects of human recreational disturbances on the distribution of 39 species of birds along a highly visited nature trail in Sinharaja World Heritage Forest, Sri Lanka, from May to November, 2013. The study employed eighteen 25 m fixed-radius point counts laid perpendicular to the nature trail (six counts along the nature trail, and six counts each 100m and 200 m perpendicular to the trail). Each point count was visited at least 18 times during the study period at different times of the day. Point counts recorded 37 breeding resident species of which 17 were endemic, while there were two migrant species. Human recreational disturbances were defined in terms of visitor group size (visual disturbance) and their relative noise level (noise disturbance). Accordingly, four disturbance levels (no human disturbance, low human disturbance, medium human disturbance and high human disturbance) were derived using a two-step clustering procedure. The relationship between disturbance levels and abundance of birds was statistically tested.

Results revealed a significant negative correlation between visitor numbers and abundance of birds in point counts on the trail (*Spearman's rho* = -0.20, *p*=0.045), and a significant positive correlation between the same variables in plots 200m away from the trail at 0.05 significance level (*Spearman's rho* = 0.19, *p*=0.049). This in general, suggests a possible avoidance of edge habitats by birds at the human presence and flushing into the forest. Regardless of the disturbance type, mean number of birds recorded was highest in plots on the trail (mean =14.20 ± SD or SE 1.98) followed by plots 200 m away from the trail (mean =10.11± SD or SE 2.00). Null hypothesis of "bird counts at various distances from the trail are independent of disturbance levels" was tested using Chi-square test for each species. Out of 22 species with sufficient data available for analysis, Ashy-headed laughing thrush (*Garrulax cinereifrons*) found to shift away from the trail as disturbance levels increased ( $\chi^2$  =6.41, *p*=0.041). For the most species recorded in the study, non-significance for Chi-square test suggests that these species may have become habituated to low-intensity and predictable human recreational disturbances.

**Keywords:** Human recreational disturbances, Avifauna distribution, Visitor pressure