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RECREATIONAL DISTURBANCES AFFECT TROPICAL MIXED-SPECIES BIRD FLOCKS IN SINHARAJA WORLD HERITAGE RAINFOREST, SRI LANKA

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ABSTRACT

Mixed species bird flocks, defined as groups of individuals from at least two species moving in the same direction searching for food together, is a spectacular phenomenon in tropical rain forests. In Sri Lanka, mixed-species bird flocks have been well-studied in the low to mid-elevation rainforests of the south-west part of the country where avian diversity and endemism is highest. Especially, the mixed-species bird flocks in Sinharaja World Heritage Forest have become a key attraction for both local and foreign birders. However, it's been reported that increased non-consumptive uses of forests, such as nature-based tourism cause negative impacts on birds. Yet, scientific evidences to assess the extent of this threat are limited in literature, especially in the case of tropical birds. In this study we examined the impact of human recreational disturbances on mixed-species bird flocks encountered along a highly-used nature trail in Sinharaja World Heritage Forest, a tropical lowland rainforest in south-west of Sri Lanka. During the period of April to December 2013, we conducted 307 point counts at 27 sampling stations (nine circular plots of 25m fixed-radius laid along the nature trail and 18 plots located perpendicular to the trail at 75m and 150m intervals). The degree of human recreational disturbances was assessed in terms of visitor group size (visual disturbance) and their noise level (sound disturbance). Thus, four disturbance levels were derived; no human disturbance, low, medium and high disturbance. The impact of recreational disturbances on mixed-species bird flocks was assessed using key 'nuclear' and 'adherent' species as indicators. One-way ANOVA tests revealed that, under no recreational disturbances occurring at the nature trail, the mean number of birds recorded at point counts along the nature trail (0m level) was significantly high ($p<0.05$) for Ashy-headed Laughing-thrush, Dark-fronted Babbler, Malabar Trogon, Orange-billed Babbler and Red-faced Malkoha. These species avoided the habitat edges along the jungle trail under increased visitor activity. The sensitivity of individual bird species to visitor recreational disturbances seem to vary with the stratum/layer of the rain forest that the bird species usually occupy.

Keywords: mixed-species bird flocks, Sinharaja rain forest, recreational disturbances, ecotourism, recreation ecology