Host-brood parasite community changes across an edge-interior gradient in a tropical rainforest at Ayer Hitam Forest Reserve, Malaysia.

ABSTRACT

Although host species generally face increased risk of brood parasitism in fragmented temperate landscapes and forest edge, little information exists to assess such risks in tropical birds. We studied how Cuculidae species populations, host species population, and micro-environmental variables changed along an edge-to-interior gradient in a 1248 ha rainforest patch in Peninsular Malaysia. Bird observations and environmental variables, including vegetation structure and microclimatic measurements were made within a 25 m radius of each of 93 sampling points distributed throughout the study area. The most pronounced changes in host-brood parasite bird community occurred within 400 m of the forest edge. Based on bird-habitat associations along the edge-interior gradient, three groups of birds were distinguished. The first group, including Indian Cuckoo (Cuculus micropterus) and Plaintive Cuckoo (Surniculus lugubris), was positively correlated with abundance of some edge specialist babblers such as Striped Tit-babbler (Macronous gularis) and Fluffy-backed Tit-babbler (Macronous ptilosus) at 25-200 m from the forest edge. The second group, including Drongo Cuckoo (Surniculus lugubris) and Banded Bay Cuckoo (Cacomantis sonneratii), showed positive correlation with the abundance of Greater Racket-tailed Drongo (Dicrurus paradiseus) at 400 m from the forest edge. The third group, including Chestnut-bellied Malkoha (Phaenicophaeus sumatranus), Black-bellied Malkoha (Phaenicophaeus diardi), and Green-billed Malkoha (Phaenicophaeus tristis), did not show any detectable correlation with distance from the edge. The fact that the forest edge has a high population of brood parasites compare to the interior is cause for concern. From conservation perspective, protection of large lowland forest remnants with a low proportion of edge is recommended.

Keyword: Brood parasitism; Community analysis; Cuculidae; Edge effect; Fragmentation; Host species.