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VERTICAL DISTRIBUTION OF ORNITHOPHILIC MOSQUITOES IN FORESTED HABITATS OF CENTRAL SRI LANKA

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Spatial and temporal distribution of host is a crucial factor in feeding preferences of blood feeding insects. The spatial distribution of ornithophilic mosquitoes that feed on avifauna at different strata of the forest ecosystems is important in determining their role as vectors of blood parasites. In this study, vertical distribution of ornithophilic mosquitoes was explored in two secondary natural forests [SNF = Hantana (HAN) and Halgolla (HAL) Forest Reserves] and two forested areas in human settlements [HS = Peradeniya (UOP) and Gampola (GAM)] of central Sri Lanka. Bird-baited traps using Japanese quails (*Coturnix japonica*) as bird baits were used to collect ornithophilic mosquitoes. A total of 20 sampling sessions was done between January and May 2019. Bird-baited traps were set up from 18:00 - 22:00 h at three different height levels, 1 m, 3 m and 6 m, at each sampling site. The selected height levels represent the forest floor, understory vegetation, and canopy level, and these are common nesting and roosting sites of the local avifauna. Three bird-baited traps and a control trap without bird bait were set up at each height level. Mosquitoes collected were euthanized at –4 °C and identified using standard taxonomic keys. Diversity indices were used to characterize the species diversity and the abundance of collected mosquitoes. Variations of diversity and the abundance of mosquito fauna at each habitat type were compared using One-Way ANOVA. There was a significant difference in abundance of ornithophilic mosquitoes among three height levels [SNF (F = 4.28, df = 29, p = 0.024) and HS (F = 19.57, df = 29, p < 0.001)]. The highest numbers of ornithophilic mosquitoes were reported from the 6 m height [HAN (219; 53.3%), and HAL (93; 49.5%), GAM (136; 45.5%), UOP (163; 51.7%)]. The diversity of the mosquito fauna in three different height levels was not significantly different (p > 0.05). A total of 1,212 individual mosquitoes belonging to 15 species and seven genera (*Aedes*, *Armegeres*, *Coquilletidia*, *Culex*, *Mansonia*, *Mimomyia*, *Orthopodomyia*) were identified. Of them, *Culex bailyi*, *Orthopodomyia flavithorax*, *Or. anopheloides*, and *Mansonia annulifera* were restricted to the SNF, while *Cx. sitiens*, *Cx. fuscanus*, *Aedes albopictus*, and *Mimomyia chamberlaini* were limited to the HS. HS forests were dominated by *Cx. nigropunctatus* (44.9%) followed by *Cx. quinquefasciatus* (28.7%), and both species were distributed evenly along the vertical axis of the vegetation. *Culex pseudovishnui* (38.9%) and *Orthopodomyia flavithorax* (17.7%) were the most common mosquitoes at SNF, and their distribution were also somewhat similar along the vertical axis. *Culex vishnui* was reported only at 6 m height level of both HS and SNF while *Cx. sitiens*, *Cx. fuscanus*, and *Mimomiya chamberlaini* were reported only at 6 m height level of HS. Results of this study provide important information about the spatial distribution of ornithophilic mosquitoes in Sri Lanka.

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