

## Resource partitioning in bird faunas of forest and agricultural ecosystems

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Studies on niche dynamics or resource partitioning are useful in the conservation of bird species. The present study was carried out to study how birds partitioned space according to the foraging guilds in a relatively undisturbed secondary forest at Upper Hantana and a nearby agricultural land. Data collection was done from January to August 2015. Twenty sampling points were selected in each habitat using systematic random sampling method. Each sampling point (separated from the next by a minimum distance of about 250m to avoid double counting) was observed twice a week for 15 weeks. Peak observation hours were from 0600h-0900h and 1500h-1800h. Height (m) to the branch or trunk of a particular tree (consisting of foraging sites as well as nesting sites) occupied by the bird of concern was recorded. About 15 – 20 minutes were spent at each sampling station. Point counts with unlimited distance were taken. Birds were observed using 7×50 binoculars, and identified to the species level using standard field guides. Standardized niche breadth was calculated using Levin's (1968) Index and niche overlap was calculated using Pianka's (1973) Index.

A total of 3,036 observations were made on 48 bird species. Seventeen species were common to both ecosystems. In the natural forest, species with the highest niche breadths were Spotted Dove (*Streptopelia chinensis*) (0.86) and Common Mynah (*Acridotheres tristis*) (0.65) and in the agricultural area, White-throated Kingfisher (*Halcyon smyrnensis*) (0.86), Brown-headed Barbet (*Megalaima zeylanica*) (0.68), Common Babbler (*Turdoides affinis*) (0.66) and Red-vented Bulbul (*Pycnonotus cafer*) (0.59). This might be due to lower number of competitors. Niche overlap was observed among many species within the understory insectivores in both ecosystems. This is probably due to many foraging opportunities which are provided within the understory layer compared to other layers. The Red-vented Bulbul and Black-hooded Oriole (*Oriolus xanthornus*) (0.34), Common Mynah and Black-hooded Oriole (0.32) and Pale-billed Flowerpecker (*Dicaeum erythrorhynchos*) and Brown-headed Barbet (0.28) had reduced niche overlap in the agricultural land than in the natural forest. This may be due to some opportunistic behaviors of birds which were adapted to use available food sources in agricultural land than in natural forest. Hence endemic bird species and other highly specialized insectivorous species face a high level of competition with opportunistic bird species in the agricultural lands. Hence when biodiversity conservation strategies are designed, the protection of fine-scale habitat diversity should be considered a priority.