

DIVERSITY OF AVIFAUNA IN SELECTED HABITATS IN RAJARATA UNIVERSITY PREMISES

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Sri Lanka is well known for its rich biodiversity and even considered as one of the biodiversity hot spots, along with the Western Ghats of India¹. Even though, dry zone is the largest climatic zone in Sri Lanka, most of the studies are confined to forest patches of major national parks and sanctuaries. Only a few studies were conducted on the scrublands and grasslands, which contributes to a remarkable percentage of dry zone vegetation². Mihintale is known as the first sanctuary of the world. It is also one of the 70 Important Bird Areas (IBAs) in Sri Lanka³. The main objective of this research was to find the avifaunal diversity in selected habitats and their response to habitat alterations caused by human land use activities and habitat modifications. The study area comprised of the right side border of the Rajarata University premises where different species such as *Drypetes sepiaria*, *Manilkara hexandra* and *Bauhinia racemosa* were dominant in shrubs while *Azadirachta indica* and *Mangifera indica* were found scattered among the shrubs. Wide variety of shrubs supported and provided nesting sites for a number of bird species. A number of proposed buildings are to be constructed in this site. The adjoining grassland habitat is bordered by the Mihintale tank, which inundates during the North East monsoon period and remains as wet grassland during rest of the year. The vegetation of grassland habitat comprised of 1-1.5 m tall dense herbaceous layer and an abundance of insects. The survey was conducted from September 2011 to March 2012. Data collection was carried out two days a week for six months. For the data collection Belt transect (500 m x 25 m) and opportunistic observation methods were adapted for scrubland habitat and point count method was used for the grassland habitat. The birds were observed during 6.00 to 7.30 h in the morning and 16.00 to 18.00 h during evening along the fixed 2 transects and 2 points and were recorded. For visual detection 10 x 50 Bushnell binoculars were used. Minitab (version 14) was used for the data analysis.

a) Species composition

During the six month period, 80 species belonging to 38 families were recorded in both ecosystems. This number comprised of 48 species confined to scrubland habitat, 20 species in grassland habitat and 12 species cosmopolitan to both habitats. 71 breeding resident species, 05 winter migrants, 01 endemic species and 03 proposed endemic species were recorded. The birds belonged to Psittacidae, Columbidae and Sturnidae families dominated the scrubland habitat, while Timaliidae and Estrildidae families dominated the grassland. Rose ringed parakeet (*Psittacula krameri*), Spotted dove (*Spilopelia chinensis*) and Red vented bulbul (*Pycnonotus cafer*) dominated the scrubland habitat. Scaly breasted munia (*Lonchura punctulata*) and Tawny bellied babbler (*Dumetia hyperythra*) were the dominant species in grassland. Blue tail bea eater (*Merops philippinus*), brown shrike (*Lanius cristatus*), brown breasted fly catcher (*Muscicap muttui*), whiskered tern (*Chlidonias hybridus*) and Indian pittah (*Pitta brachyura*) were the winter visitors observed in the study area. Grey hornbill (*Ocyrceros gingalensis*) was the only recorded endemic species which was also recognized as a nationally threatened bird species. Common wood shrike (*Tephrodornis pondicerianus*), pompadour green pigeon (*Treron pompadora*) and red rumped swallow (*Cecropis daurica*) were also observed which were, proposed as endemic

b). Species diversity, abundance and diurnal variation

Species diversity of scrubland habitat has a significant difference compared to grassland habitat ($p=0.007$). The highest biodiversity was recorded in the scrubland habitat ($H'=3.5017$) while grassland habitat showed a lower diversity ($H'=2.7579$). The scrubland habitat vegetation provides a range of suitable roosting and foraging opportunities for birds with different food habits and diverse niches. On the other hand grassland habitat was abundant with insects and only insectivorous little birds were found there. There was a slight diurnal variation observed in both habitats. Highest diversity was recorded during the early hours ($H'=3.7286$ in scrubland habitat and 3.5814 in grassland habitat respectively). This implies that the both ecosystems are abundant of food and even the birds roosting in other ecosystems visit these habitats for foraging purposes. The highest bird population was recorded during December in the rainy season, while the lowest was observed during October (Fig. 1). The increase in bird population during the rainy season may be due to increase in food abundance in that period. Vegetation is the most important component that affect the avifaunal population. It helps them to a find suitable ecological niche from different strata of vegetation to breed and disperse. Removal of scattered roosting and foraging trees for construction purposes may cause deficiencies in foraging, roosting and nesting places for birds⁵. The gravel road which was used as transect is now constantly used as a shortcut to Mihintale town by many automobiles including some heavy vehicles. All these activities cause disturbance to avifaunal community with increasing sound and air pollution. This may also cause the ecosystem vulnerable to invasive flora and fauna⁶. Additionally the distribution pattern of the baya weavers, munias and pipits can also be changed as a result of frequent exposure to the invasive species. Study concludes that major threats to the species are the habitat destruction and fragmentation due to construction processes and disturbances caused by human anthropogenic activities.

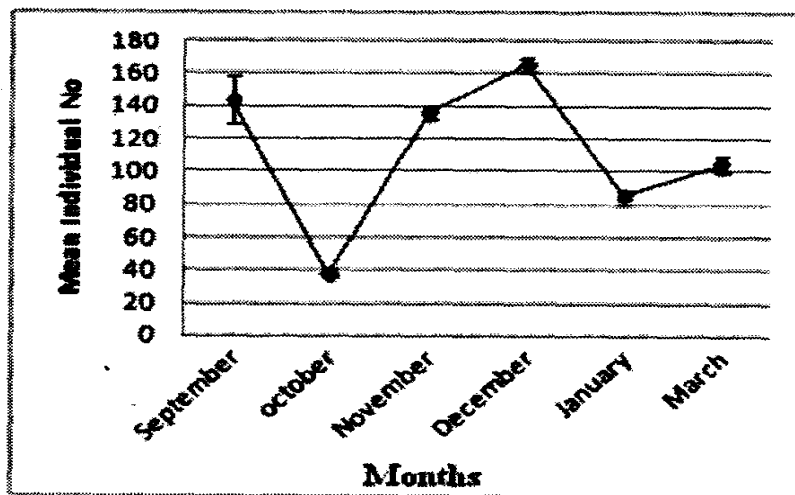


Figure 1: Diurnal variation of individual numbers in the study area

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