

# A Study of the non-captive Avifaunal diversity in the National Zoological Gardens, Dehiwala, Sri Lanka



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Sri Lanka, despite its small land area of 65, 610 km<sup>2</sup>, has an estimated population (in 2005) of 20,743,000 people (Answers.com, 2008). It is one of the biologically richest countries in South Asia and is considered as a global hotspot in terms of its biological diversity (Mittermeier *et al.*, 2004). This high biodiversity can be attributed to high climatic variation resulting due to monsoonal rainfall patterns, presence of many different soil groups and the altitudinal variation.

The avifaunal diversity of Sri Lanka comprises of 482 species, of which 220 are breeding residents which includes 26 endemics (Kaluthota *et al.*, 2007; Kotagama

*et al.*, 2006). In addition, 95 migrant, 25 pelagic and 75 accidental species have been recorded on the island (Kotagama *et al.*, 2006). Birds are some of the most colorful and easily observed inhabitants of every habitat within Sri Lanka. The National Zoological Gardens of Sri Lanka located in Dehiwala within a highly residential setting also functions a refuge for number of bird species in addition to the native and exotic species exhibited under captive conditions. However, the diversity of free ranging birds in the National Zoo has not been fully documented nor affectively exploited as a valuable resource base to create awareness among the zoo visitors. The aim of this paper is to document the diversity of free ranging birds in the National Zoological Gardens.

The National Zoological Gardens (NZG) is approximately 23 acres in extent. It is located in the low land wet zone of Sri Lanka (6° 51' 21.48" - 6° 51' 30.30" N and 79° 52' 20.08" - 79° 52' 33.99" E) (Karunaratna *et al.*, 2008) at a mean elevation of 25 m above sea level. The nearest city is Dehiwala (2 km) and its proximity to the City of Colombo (11 km) makes it an easily accessible

location for the potential visitors (Masinghe *et al.*, 2004; Weinman, 1957). The NZG receives a mean annual rainfall of >2000 mm and the mean annual temperature ranges from 27.1 °C to 29.4 °C (Somasekaran, 1988). The NZG consist of several habitat types which can be categorized as small grasslands, scrublands, small ponds, home gardens and large shady trees (eg., *Ficus* spp., *Diospyros* spp., *Pterocarpus* spp., *Samanea* spp. and *Tabubbia* spp.) (Karunaratna *et al.*, 2008).

This study was conducted from January to June 2006. A total of 36 days were spent for fieldwork over this six month period. Visual encounter survey method (VES) was used to gather data aided by binoculars (8x30) and a telescope (20x). Permanent line transects (100m) were established in each of the representative habitats. These line transects were surveyed by foot between 0900hrs and 1200hrs and again between 2000hrs and 2200hrs amounting to a total of five hours per day. All night surveys were conducted with the use of a flashlight. All the bird species observed or heard were recorded. The nomenclature followed in this paper is based on Kotagama *et al.* (2006).

The free ranging bird assemblage at the National Zoological Gardens of Sri Lanka comprises of 57 bird species belonging to 47 genera and 26 families. This also included 2 species of birds that are endemic to Sri Lanka and 2 winter visitors. This represents approximately 11.8% of total Sri Lankan avifauna and also 25.9% of native avifauna. Another notable observation is that among the bird species observed in NZG, more than 25% are aquatic birds including the globally near threatened species, *Pelecanus philippensis* (Spot-billed Pelican).

Among the birds observed in the NZG, *Megalaima zeylanica* (Brown-headed Barbet), *Halcyon smyrnensis* (White-throated Kingfisher), *Centropus sinensis* (Greater Coucal), *Psittacula krameri* (Rose-ringed Parakeet) and *Columba livia* (Rock Pigeon) were the commonest species while *Spilornis cheela* (Crested Serpent Eagle), and *Halcyon capensis* (Stork-billed Kingfisher) were the rarest species observed. The two endemic species recorded, *Loriculus beryllinus* (Sri Lanka hanging parakeet) and *Megalaima flavifrons* (Sri Lanka Yellow-fronted Barbet) were also rare in the NZG.

The National Zoological Gardens, or the Zoo as it is popularly known, performs an educational and recreational role (Weinman, 1957), while also functioning as a national heritage center (Masinghe *et al.*, 2004). Apart from the exotic as well as the native animals held in captivity, the NZG provides habitats for number of free ranging



native fauna of which the prominent group is birds. This included a number of aquatic, terrestrial and arboreal inhabitants.

The mixture of vegetation types and aquatic habitats in NZG has made it an ideal ecotone for a variety of birds. About quarter of the bird species recorded were those associated with wetland ecosystems. The presence of large population of piscivorous bird species such as cormorants, darters, herons and egrets which could be attributed the abundance of fish available in the ponds supplemented by regular feeding carried out by the zoo. Further, the large trees in the NZG also acts roosting and breeding places for a large numbers of aquatic species such as, kingfishers, cormorants, egret, herons and pelicans.

During the survey period several threats to the free ranging bird populations were observed such as water pollution and the excessive use of chemicals. This preliminary investigation of the avifauna of the NZG clearly shows that it is an important location in terms

of biodiversity. Therefore, these free ranging birds should be exploited by the management of Zoological gardens to create awareness about Sri Lankan birds among the Zoo visitors through specially designed programmes. Some of the activities that can be undertaken include guided bird walks and providing more interpretation material such as brochures, booklets, and fixed interpretation boards at selected locations. Further the management should look into habitat enrichment by planting more food trees as well as trees suitable for roosting and breeding of birds in an effort to attract more free ranging birds. Finally, an effort should be made to reduce the possible sources of pollution to reduce the threat to the free ranging birds.



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### Checklist of the Birds of the National Zoological Gardens (NZG) Sri Lanka, Dehiwala

#### Family - Accipitridae

- 1 *Haliastur indus* ( Brahminy kite )  
Bamunu Piyakussa
- 2 *Spilornis cheela* ( Crested serpent eagle )  
Silu Sarapakussa
- 3 *Accipiter badius* ( Shikra )  
Ukussa

#### Family - Alcedinidae

- 4 *Alcedo atthis* (Common kingfisher )  
Mal Pilihuduwa
- 5 *Halcyon capensis* (Stork-billed kingfisher )  
Manathudu Madi-pilihuduwa
- 6 *Halcyon smyrnensis* (White-throated kingfisher )  
Layasudu Madi-pilihuduwa

#### Family - Apodidae

- 7 *Cypsiurus balasensis* ( Asian Palm Swift )  
Asia Thal-thurithaya
- 8 *Apus affinis* ( House swift )  
Punchi Thurithaya
- 9 *Collocalia unicolor* ( Indian swiftlet )  
Indu Upa-thurithaya

#### Family - Ardeidae

- 10 *Egretta garzetta* ( Little egret )  
Punchi Ali-koka
- 11 *Ardea cinerea* ( Grey heron )  
Alu Koka
- 12 *Ardea purpurea* ( Purple heron )  
Karawal Koka
- 13 *Casmerodius albus* (Great egret )  
Maha Sudu-koka
- 14 *Mesophoyx intermedia* ( Intermediate egret )  
Sudu Madi-koka
- 15 *Bubulcus ibis* ( Cattle egret )  
Gava-koka
- 16 *Ardeola grayii* ( Pond heron )  
Kana-koka
- 17 *Nycticorax nycticorax* ( Black-crowned night heron )  
Ra-koka

#### Family - Centropodidae

- 18 *Centropus sinensis* ( Greater coucal )  
Ati-kukula

#### Family - Ciconiidae

- 19 *Anastomus oscitans* ( Asian openbill )

Asia Vivarathuduwa

#### Family - Columbidae

- 20 *Columba livia* ( Rock pigeon )  
Podu Paraviya
- 21 *Streptopelia chinensis* ( Spotted dove )  
Alu Kobeiyya

#### Family - Corvidae

- 22 *Corvus splendens* ( House crow )  
Kolamba Kaputa
- 23 *Corvus macrorhynchos* ( Large-billed crow )  
Kalu Kaputa
- 24 *Oriolus xanthornus* ( Black-hooded oriole )  
Kahakurulla
- 25 *Dicrurus caerulescens* ( White-bellied drongo )  
Kawuda
- 26 *Terpsiphone paradisi* ( Asian Paradise-flycatcher )  
Asia Rahanmara
- 27 *Tephrodornis pondicerianus* ( Common woodshrike )  
Podu Wana-saratiththa

#### Family - Cuculidae

- 28 *Eudynamis scolopacea* ( Asian koel )  
Kowula

#### Family - Hirundinidae

- 29 *Hirundo rustica* ( Barn swallow )  
Atu Wahilihiniya
- 30 *Hirundo daurica* ( Red-rumped swallow )  
Nithamba rathu Wahilihiniya

#### Family - Laniidae

- 31 *Lanius cristatus* ( Brown shrike )  
Bora Sabariththa

#### Family - Megalaimidae

- 32 *Megalaima zeylanica* ( Brown-headed barbet )  
Polos Kottoruwa
- 33 *Megalaima flavifrons* ( Sri Lanka Yellow-fronted barbet )<sup>e</sup>  
Sri Lanka Ranmunatha Kottoruwa
- 34 *Megalaima rubricapilla* ( Crimson-fronted barbet )  
Rathmunath Kottoruwa

#### Family - Meropidae

- 35 *Merops philippinus* ( Blue-tailed bee-eater )  
Nilpenda Binguharaya

#### Family - Muscipidae

- 36 *Muscicapa daurica* ( Asian brown flycatcher )  
Asia Bora Masimara
- 37 *Copsychus saularis* ( Oriental magpie robin )  
Polkichcha

#### Family - Nectariniidae

- 38 *Dicaeum erythrorhynchos* ( Pale-billed flowerpecker )  
Lathudu Piliichcha

## Map of the National Zoological Gardens, Dehiwala



- 39 *Nectarina zeylonica* ( Purple-rumped sunbird )  
Nithamba Dam Sutikka
- 40 *Nectarina asiatica* ( Purple sunbird )  
Dam Sutikka
- 41 *Nectarina lotenia* ( Loten's sunbird )  
Lotenge Sutikka

**Family - Passeridae**

- 42 *Passer domesticus* ( House sparrow )  
Gekurulla

**Family - Pelecanidae**

- 43 *Pelecanus philippensis* ( Spot-billed pelican )  
Thithhota Pasthanuwa

**Family - Phalacrocoracidae**

- 44 *Phalacrocorax niger* ( Little cormorant )  
Punchi Diyakava
- 45 *Phalacrocorax fuscicollis* ( Indian cormorant )  
Indu Diyakava

**Family - Picidae**

- 46 *Dinopium benghalense* ( Black-rumped  
flameback ) Rath-karela
- 47 *Chrysocolaptes lucidus* ( Greater flameback )  
Lepita Maha-karela

**Family - Pittidae**

- 48 *Pitta brachyura* ( Indian Pitta )  
Avichchiya

**Family - Psittacidae**

- 49 *Loriculus beryllinus* ( Sri Lanka hanging parakeet )  
Sri Lanka Giramaliththa
- 50 *Psittacula eupatria* ( Alexandrine parakeet )  
Labu Girawa
- 51 *Psittacula krameri* ( Rose-ringed parakeet )  
Rana Girawa

**Family - Pycnonotidae**

- 52 *Pycnonotus cafer* ( Red-vented bulbul )  
Kondaya

**Family - Rallidae**

- 53 *Amaurornis phoenicurus* ( White-breasted  
waterhen )  
Laya-sudu Korawakka

**Family - Scolopacidae**

- 54 *Actitis hypoleucos* ( Common sandpiper )  
Podu Siliththa

**Family - Strigidae**

- 55 *Otus sunia* ( Oriental scops owl )  
Peradigu Kanbassa
- 56 *Ninox scutulata* ( Brown hawk owl )  
Bora Ukusu-bassa

**Family - Sturnidae**

- 57 *Acridotheres tristis* ( Common myna )  
Mayna