

POPULATION DISTRIBUTION OF *MACACA SINICA SINICA* AT MIHINTALE SANCTUARY, SRI LANKA

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INTRODUCTION

The Dry zone *Macaca sinica sinica* is a subspecies (toque macaque/ Temple monkey) endemic to Sri Lanka and classified as Endangered (EN) on the IUCN Red List. Mihintale Sanctuary is considered to be the first declared sanctuary for wildlife in the world. Even though the biodiversity of this area is high there has been no detail study on the distribution of *Macaca sinica sinica*. The aims of the research were to determine the population size and structure of the *Macaca sinica sinica*, spatial distribution of this species, identify the different food types they consume and the threats faced by this species.

MATERIAL AND METHOD

The study was carried out in Mihintale sanctuary which is located in the Anuradhapura District of the North-Central Province of Sri Lanka, between 8°18' - 8°23' N and 80°27' – 80°35' E containing in extant about 2,470 acres (999.6 Ha). The study area consists of three major vegetation types; semi deciduous forest, shrub lands and teak dominated forests. The Kaludiya pokuna forest (KPF) , Ethvehera forest (EVF) and forest at Mihintale rock (MRF) were considered as undisturbed while Rajagirilena forest (RLF) and Boundary between Mihintale sanctuary and Kumarasirigama village (BF) were selected as disturbed area for the data collection of population. Population study was carried out by direct counting and vocal sounds. Fixed permanent line transects were used for the data collection of the population. Behavioural data were recorded by scanning method and photographed animals using video cameras on site (Alexander, 1974). Floristic composition was determined in 5 quadrates of 625 m².

RESULTS AND DISCUSSION

Habitat types of the sanctuary

Habitat types comprised of semi deciduous forests, scrublands, water-edge habitats and highly degraded tertiary forests. Undisturbed forests (Kaludiyapokuna, Ethvehera and Mihintale rock) have a large number of trees and a minimum number of shrubs while, disturbed forests (Kumarasirigama village and Rajgirilena) consisted of more herbs than trees and a lower number of shrubs. The dominant plants in the undisturbed forests were *Dialium ovoideum* (Gal-siyambala), *Diospyros eburnum* (Kaluwara), *Drypetes sepiaria* (Weera) and *Manilkara hexandra* (Palu) while *Diospyros malabarica* (Thimbiri), *Cassia fistula* (Ehela) and *Mallotus eriocarpus* were dominant in the disturbed forest.

Population distribution

The present distribution of *Macaca sinica sinica* is severely fragmented within the sanctuary. *Macaca sinica sinica* used all the sites that were chosen to conduct the study. The cave in Rajagirilena, Kaludiyapokuna and Mihintale rock were the commonly used roosting sites. *Mallotus eriocarpus* and *Drypetes eburnum* tree tops were used as their roosting sites when they were in the boundary between sanctuary and Kumarasirigama village. A total of 05 troupes including 205 individuals were recorded during the study period between December 2009 and May 2010. These five troupes were sighted in Kaludiyapokuna (39 individuals), Rajagiri lena (43 individuals), Ethvehera (41 individuals), Mihintale rock area (53 individuals) and Boundary between Sanctuary and Kumarasirigama village (34 individuals). Information from local people indicated the possible occurrence of at least 05 troupes or more in the region. Due to human influences remaining populations were living almost completely in none forested habitats. (Dittus 2004).

Group size and composition

The group sizes of the *Macaca sinica sinica* were 38-43, 40-43, 49-53, 42-47 and 33-35 in Kaludiyapokuna, Ethvehera, Mihintale Rock, Rajagirilena and Boundary respectively. The size of the *Macaca sinica sinica* group was highest in Mihintale Rock forest (49-53 with an average of 48.6 ± 4.32) while the lowest recorded in contiguous forest in human settlements (33-35 with an average of 33.2 ± 2.48). The results indicated that the distribution pattern was varied with the food availability both in the forest and the neighboring villages.

Table 1 : Age/sex structure of the population.

Age/sex	KPF (N-39)	EVF (N-41)	MRF (N-48)	RLF (N-43)	B (N-34)
Adult male	10-14	11-13	10-13	12-15	10-13
Adult female	10-13	12-14	13-16	13-17	11-13
Sub adult males	6	8	7	6	5
Juveniles	6	5	8	4	4
Infants	10-12	14-18	16-19	10-11	10-12

Disturbed forests: Boundary between sanctuary and village (B) and Rajagirilena forest (RLF), Undisturbed forests; Ethvehera forest (EVF), Kaludiyapokuna forest (KPF) and forest in Mihintale rock (MRF)

Five multimale troops were recorded within the sanctuary. Among these groups the adult males and females were highest in Rajagirilena forest while in the other sites their numbers were all most the same. But in the Mihintale rock forest the number of infants were higher than those recorded in the other forest patches (table 1). The reason for this may be due to the high fertility rate of the group.

Habitat Utilization and Food Availability

Macaques are omnivorous with a diet that included seeds, grasses, leaf shoots, fruits, flowers, mushrooms, insects, lizards and birds' eggs. It has been observed during the present study that the temple monkeys ingested 78 % mature leaves, young leaves, fruits, flowers, stems and bark of the plants while the remaining 22% of diet included insects, lizards and termites. It was observed that in dry season food availability in the forested areas was very low due to the competition among other primate species and herbivores. During this period 84% of macaques frequently visited the home gardens and damaged the crops and vegetation to fulfill their feeding requirements. Additionally they consumed cooked meals from villages and temples. During the monsoon months from December to January they were frequently observed consuming annelid worms, small insects and rice etc. In rainy season the food availability is comparatively high. Most of the macaques were roaming in the forested areas but 12% macaques came to village due to their habituation for rice and other cooked food.

Diurnal Activity Patterns

The major diurnal activities were resting, moving, grooming and feeding (Chivers, 1969). Out of these activities temple monkey spent maximum time for resting (51%) on the trees and ground floor while 17% moving, 21% feeding and 11% grooming during the day.

AVIFAUNAL DIVERSITY IN FACULTY OF APPLIED SCIENCES PREMISES RAJARATA UNIVERSITY OF SRI LANKA

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INTRODUCTION

Sri Lanka's avifauna is one of the richest in the whole of Asia (Kotagama and Ratnavira, 2010). About 482 bird species were recorded including 220 breeding residents and 26 species endemic to the country (Kotagama, *et al.*, 2010). Although several studies have been carried out previously about the avifauna of Sri Lanka, most of these studies are confined to the wet zone and information on the dry zone avifauna is scarce. In 2008 a detailed study on avifauna was carried out in Mihintale sanctuary which is one of the important sites within the dry zone (Wimalasekara and Wickramasinghe, 2010). The faculty of applied science locates adjacent to the Mihintale forest and provides habitats for different species of birds. Hence the present study focuses to identify the species diversity and feeding ecology of bird species within the faculty premises.

MATERIALS AND METHODS

The current study was conducted during the period from August to September 2011. Data was recorded during morning from 06.00 hr to 08.00 hr and 16.00 hr to 18.30 hr in the evening for 30 days. Two methods namely line transect method (Bibby *et al.*, 1993) and the opportunistic observation method were used. The area covered during sampling was 500 m x 50 m. The birds were counted within a fixed width of 25 m on either side of the transect. The Faculty of Applied Sciences Premises consists of different types of habitats; ranging dense vegetation to open grasslands. Eastern border of the study site is covered with dense vegetation while the southern border consists of grassland. The open spaces, shaded areas and rocky places are dominating within the faculty premises.