SOME OBSERVATIONS ON TROOP STRUCTURE, ACTIVITY BUDGET AND FOOD HABITS OF THE NILGIRI LANGUR (*PRESBYTIS JOHNII*) IN PERIYAR DURING MONSOON (JUNE - AUGUST)

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Introduction

Nilgiri Langur, *Presbytis johnii*, is an endemic species to the Western Ghat. It once enjoyed a wide distribution in the Southern-Western Ghats, but has become an endangered species now, due to hunting, habitat destruction and conversion of forest lands. The false belief about the medicinal value of its meat led to a fast decline in the number of this species.

Some studies on the ecology and social behaviour of the Nilgiri Langur were done by Poirier (1968 a, 1968 b, 1969, 1970a, 1970 b) in the Annamalais. Kurup (1975) has described the status of the species in the Annamalai, Cardamom Hills and Nilgiri Hills. Some studies on the home range, territory and the food of Nilgiri Langur in Periyar were done by Tanaka (1965) and Horwich (1972). A detailed information on the composition of its troop, behaviour pattern and seasonal variations in food habits were still lacking.

A study of the Nilgiri Langur in Periyar was started in 1992 June with a view, to compare the troop size, territory size and food habits of the species here, with previous studies and to find out changes if any occurred over the last 20 years. This paper describes the activity budgets and food habits of Nilgiri Langur in the tourism zone of Periyar Tiger Reserve in the monsoon season over a period of two years (1992-93).

Study Area and Methods

Intensive studies were centered in and around the tourism zone of the Periyar Tiger Reserve, as the troops are slightly habituated to human beings here. When the study was started, the Langurs were weary and cautious about the observer. It took about 2 months for them to become familiarised with the presence of the observer.

Monthly observations through fixed transects were done at Thannikkudy, Mullakkudy and Pachakkanam to estimate population. Some studies were also conducted on the nutrient value of various food taken by the species. Troops were followed from 8.00 A.M. in the morning till 6.00 P.M. in the evening and observed with binoculars. Observations were carried out on 5 troops at this area. Two troops had identifiable individuals with them, a female with a stumped tail in one troop and another female with a paralysed leg in another

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troop. These troops were selected for intensive study. Composition of the troop with regard to age, sex and changes taking place due to natality, mortality, emigration and immigration were recorded.

Time budget study was conducted on these two groups. On days, when observations were temporarily discontinued, the troops could usually be found again and observations resumed. Food and feeding habits were recorded along with the phenology of the plants in the area. Food plants were identified directly, while the troop was feeding and by collecting fragments of leaves and fruits fallen on the ground.

Results

Distribution and Troop size : The Nilgiri Langur enjoyed a side distribution in Periyar. A total of 178 troops were observed in the reserve, there estimated population of the species is 1100. Five troops and a lone male were observed in the tourist zone.

Table 1

Activity Budget of adult females of the two troops of Nilgiri Langur during monsoon season (in minutes)

Date	Fe	Dr	Gr	Agr	Pl	Re	Mov	Mo	Ru	Ju	Ch	Fi	Wa	Agg	Mia
June	2700	-	600	1140	-	3900	540	-	180	120	-	-	240	720	-
July	2940	-	240	300	-	3240	420	-	90	60	-	-	120	600	30
August	3120	-	360	480	-	3540	600	-	90	30	-	-	240	660	60
Total	8760	-	1200	1920	-	10680	1560	-	360	210	-	-	600	1980	90
Mean Valve	2920		400	640	-	3560	520	-	120	70	-	-	200	660	30

Table 2

Activity Budget of the adult males of the two troops of Nilgiri Langur during monsoon season (in minutes)

Date	Fe	Dr	Gr	Agr	Pl	Re	Mov	Mo	Ru	Ju	Ch	Fi	Wa	Agg	Mia
June	4140	-	1140	1020	130	2220	480	-	240	120	180	300	60	60	-
July	3600	-	660	420	-	1440	420	-	420	300	360	240	120	120	-
August	3660	-	900	540	-	1860	600	-	480	300	240	360	240	60	-
Total	11400	-	2700	1980	-	5520	1500	-	1140	720	780	900	420	240	-
Mean Value	3800	-	900	660		1840	500	-	380	240	260	300	110	80	-

Abbreviations : Fe - Feeding, Dr - Drinking, Gr - Grooming, Agr - Allogrooming, Pl - Playing, Re - Resting, Mov - Movement, Mo - mounting, Ru - Running, Ju - Jumping, Ch - Chasing, Fi - Fighting, Wa - Watching, Mia - Mother infant association.

Troop size varied from 8 to 32 the study area.

Activity patterns : There is a clear difference in the duration of the time spent by individuals of different age class in a troop. From the observations of the different class members of the two troops, the pattern of daily activities, like feeding, drinking, grooming, allogrooming, playing, resting, movement, mounting, running, jumping, chasing, fighting, watching, aggression, mother infant association and infant sucking milk has been documented. Analysis of the data showed that adult female spent more time for resting than feeding in monsoon (Table 1). But adult male spent more time for feeding, offence, defence and grooming (Table 2). Adult male spend 11400 minutes (190 hrs) out of 456 hrs for feeding, offense and defence, while adult females spend only 143 hrs for feeding and used more time for resting and parental care.

Food : The food of the Nilgiri Langur in the monsoon season consisted of fruits, nuts, buds, leaves and barks of different trees (Table 3). During rainy season it consumed mostly the tender leaves of *Tectona grandis, Terminalia paniculata, Pterocarpus marsupium.* But during winter season, it used fruits and flowers of the same plants. The Table 3 shows the different types of food plants of Nilgiri Langur during the monsoon season. They took fruits and seeds of 19 tree species and tender leaves of 3 tree species during this period. Competition for food was not observed between the Nilgiri Langur and Giant Squirrel as they were observed feeding on the same tree together. But the Langur is afraid of the Bonnet macaque and on the arrival of the latter in the feeding place, the Langur troops moved away.

Table 3

Food plants of Nilgiri Langur in Periyar in the monsoon season (June-Sep.)

Name of Plant	Part eaten
Tectona grandis	Midrib of leaf
Artocarpus hirsuta	Fruits
Enteda scandens	Tender leaf
Evodia lunu ankenda	Fruits
Actinodaphne hirsuta	Fruits
Terminalia paniculata	Tender leaf
Pterocarpus marsupium	Tender leaf
Grewia tiliaefolia	Fruits
Loranthus tomentosus	Flowers
Dalbergia latifolia	Tender leaf
Lepisanthes erecta	Fruits
Cordia obliqua	Seed
Gloriosa superba	Tender leaf
Myristica dactyloides	Seeds
Mallotus tetracoccus	Leaf buds
Hydnocarpus alpina	Seeds
Clausena indica	Fruits
Spondias pinnata	Fruits
Psidium guajava	Fruits
Memecylon malabarica	Fruits
Casearia esculenta	Fruits
Schefflera spp.	Fruits
Maesa perrottetiana	Fruits
Tabernaemontana dichotoma	Seeds
Ehretia canarensis	Flower & Fruits
Vitex altissima	Flower & Fruits
Litsea laevigata	Fruits
Fiscus callosa	Fruits
F. mysorensis	Fruits

Troop structure : Proportion of individuals (age and sex) in two groups observed during this period is given in Table 4. Sex ratio was in favour of females. Adult females formed about a third of the total number. No significant change was observed in the composition of two groups over a period of

Table 1

Troop structure in two troops of Nilgiri Langur in Periyar

1992	Adults		Subadults		Inf-ants	Juv-enile	Total	1993	Adults		Subadults		Inf-ants	Juv-enile	Total
	M	F	M	F					M	F	M	F			
Troop I :															
June	2	7	4	2	3	1	19	June	2	7	5	2	4	1	21
July	2	7	4	2	3	1	19	July	2	7	5	2	4	2	22
August	2	7	4	2	4	1	20	August	2	7	6	2	5	1	23
Troop II :															
June	3	5	5	1	4	1	19	June	4	6	7	-	3	2	22
July	3	5	5	1	4	1	19	July	4	6	7	-	3	2	22
August	3	5	6	1	4	1	20	August	4	6	7	-	3	3	23

M - Male ; F - Female

one year. One young was borne during this period in the two groups observed. No mortality was recorded in the two troops observed, during this period.

Discussion

Activity pattern of adult individuals in a Nilgiri Langur troop was studied during monsoon months in 1992 and 1993 during day time. Results show that adult male spent more time for feeding, offence, defence and grooming activities, while the female spent more time for resting than feeding. This may be related to their peak breeding season. The Nilgiri Langur took mostly fruits of trees during monsoon though they took tender leaves of certain species of trees. Adult females formed about a third of a troop. No significant change was noted in the composition of a troop in an year.

SUMMARY

To compare the troop and territory sizes, food habits and activity budgets of Nilgiri Langur in Periyar Tiger Reserves in monsoon seasons, a study was conducted and results are summarized.

पेरियर में मानसून के समय (जून से अगस्त) नीलगिरी लंगूरों (*प्रेसबायटिस जोहनाई*) की दल रचना, कार्य कलाप और भोजन आदतों विषयक कुछ पर्यवेक्षण

के०के० श्रीवास्तव, वी०जे० जकरियास, ए०के० भारद्वाज, पेट्रीशिया जोजफ व शरले जोजफ

सारांश

पेरियार बाघ आरक्षित क्षेत्र के नीलगिरी लँगूरों के मानसून मौसम में दल और प्रदेश के आकार, भोजन की आदतों और कार्यों का अध्ययन किया गया था जिसके परिणामों का सार इस अभिपत्र में दिया गया है ।

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