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A POPULATION SURVEY OF HANUMAN LANGURS IN THE BALASORE DISTRICT, ORISSA

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INTRODUCTION

Among all other leaf monkeys in India, Hanuman langur (*Semnopithecus entellus*) is the most common langur. Out of five species of langurs, the Hanuman langurs are distributed in India almost in all habitats except northeastern states and in some parts of South-India where it is replaced by Nilgiri langur. Field studies on the non-human primates of Orissa had been done by Behura *et al.* (1969) along with Wildlife of Orissa; Tiwari and Mukherjee (1992) reported primates of Puri, Bolangir and Sundargarh districts; Tiwary *et al.* (1997) published the sightings of monkeys and langurs at Chandaka Wildlife Sanctuary; Chaudhuri *et al.* (in press) reported primates of Nayagarh district of Orissa. This report deals with the information regarding distribution, abundance, social composition and status of Hanuman langurs of Balasore district, Orissa.

The other common monkey, the rhesus macaque (*Macaca mulatta*) had been reported in the hill forest by few local inhabitants. The survey team failed to locate this monkey at repeated attempts. Considerable time was spent to locate the rhesus monkeys in the Nilgiri, the hill range, which follows the south-westernly direction, nearly 50 km. Stretch in Balasore district, as far as Mayurbhanj district boundary in a horseshoe pattern. So it is now appeared from the present study that the rhesus monkey population is almost disappeared from this district.

STUDY AREAS

The Balasore district is an interesting place; in ancient time it was a part of Kalinga. During Mughal Rule, the English Merchants established the first settlement in Bengal, presidency at Balasore. It came under Maratha Rule in the 18th century. Balasore district lies between 21°04'–21°59' N latitude and between 86°22' and 87°29' E longitude. The total area of the district is about 3705 sq. km. with a human population density of 532 sq. km. The entire

district is well connected with metalloid and non-metalloid motorable roads. Physiographically, the district is composed of three district regions, *viz.* the coastal belt, inner alluvial plain and the northwestern hills. The majority area of the district is flat plain which is predominantly agriculture based rural.

There are three distinct seasons-summer, rainy season and winter. The atmospheric temperature varies from 15°C to 40°C with a mean of 26°C. Due to its proximity to the sea, the intensity of heat is mitigated in the areas having sea-breeze during March-April.

The winter is very short and is not severe even at Nilgiri hills. The annual average rainfall is about 1600 mm. The main river are Subarnarekha and Baitarini. The forested area occupied in the district is in the Nilgiri sub-division, which are moist peninsular high level Sal forests. This type occurs in the hill tops and characterized by pure stand of Sal which is of poor quality, associated with other trees in the hill and valley like *Terminalia alata, Terminalia chebulia, Callicarpa* sp., *Dillenia pentagyna, Pterocarpus marsupium, Cedrella toona, Ficus bengalensis, Terminatia tomentosa, Gmetina arborea, Madhuca indica, Angeisus latfolia, Largerstromia parviflora, Sterculia villosa* etc. The type of forests that are found crystalline and metamorphic rocks wherever the soil mixture conditions are unfavourable for development of moist Sal even in the areas with much higher rainfall. This type of areas is also common in the western parts.

METHODS

The district is well connected with motorable roads and the survey techniques used here involved slow driving vehicle along roads at an average speed of 20 km/hour. The observations were carried out in the villages, towns, temples, roadsides and forests were surveyed during period under study. The forest survey was made during April-May 2006 in some parts of the districts and remaining parts surveyed in December 2006. This report is based December 2006 survey. Total counts method was used to the estimate the population. The point method was adopted for locating monkeys in the hills. A total of 130 hours were spent in the census work. About 1800 km^2 area was surveyed which comprises 48% of the total area of the district. The survey was carried out from 0700 to 1200 hours and from 1500 to 1800 hours with three observers.

The visual and auditory signals were utilized for locating langur groups particularly in the Nilgiri whereas the other areas are mostly agricultural lands and villages. The villagers and tribal people in the forests were also inquired about the presence of monkey groups. On locating the group, notes on then social composition, habitat and interaction with human were recorded. Individuals were classified broadly into four categories based on the morphological differences and age. They are adult males, adult females, juveniles and infants. The sub-adults of the group were placed in the juveniles and adult population depending upon their age and size.

RESULTS

A total of about 1800 km^2 areas was surveyed which comprised about 48% of the area of the Balasore district and 50 groups of Hanuman langur groups were recorded. Out of these 46 groups were bisexual and 4 were all male groups. The 50 groups contained 742 langurs of which 100 adult males, 393 adult females, 131 juveniles and 118 infants. The group size varied from 4 to 31 langurs. The distribution of Hanuman langur is shown in Fig. 1. This provides a population estimate of 0.027 groups per sq. km. and 0.41 individuals per sq. km. respectively.

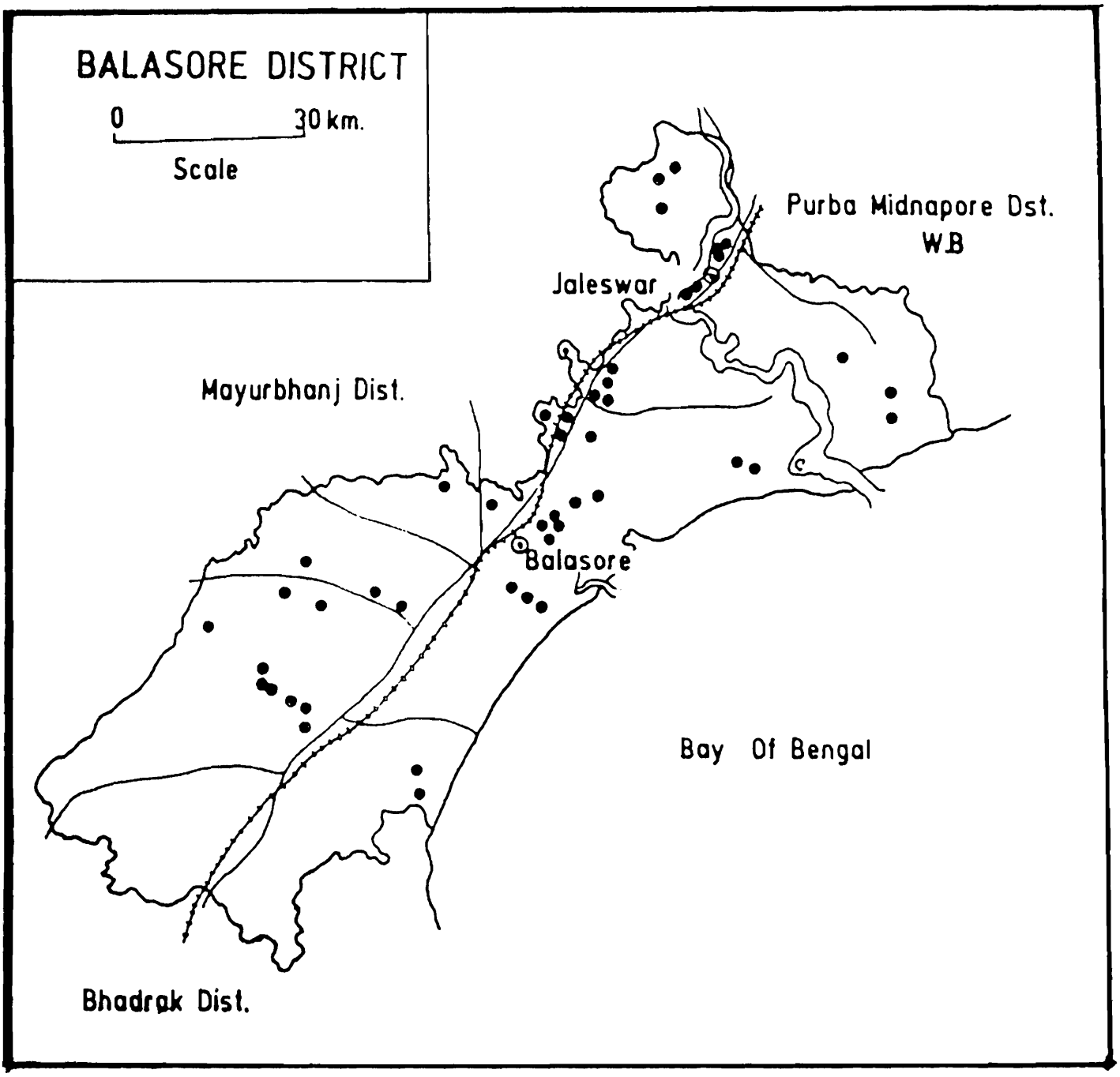

Fig. 1 : Distribution of Hanuman langur.

The 4 all male groups contained 16 langurs of the 4 all male groups one group with 5 langurs inhabited in the forest and other 3 groups with 11 langurs were village groups.

The 46 social groups contained 726 langurs (Fig. 2) consisting of 84 adult males, 393 adult females, 131 juveniles and 118 infants with a mean group size of 15.78 individuals (Table 1).

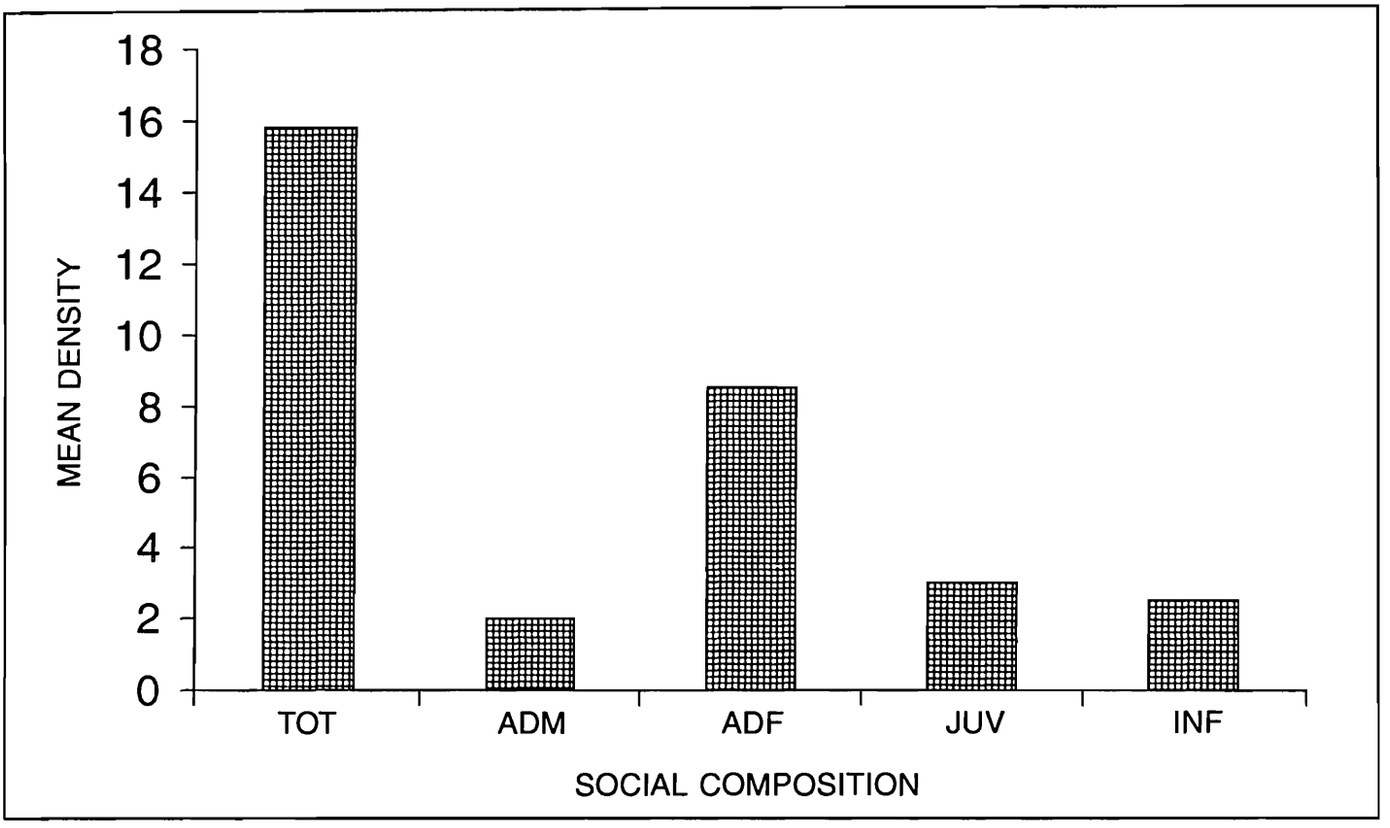

Fig. 2 : Hanuman Langur population of Balasore district.

A total of 48 newborn infants were observed in 30 groups. In 11 groups there were no infants and 3 groups there was only one infant each. The percentage composition consisted of 11.6% adult males, 54.1% adult females, 18.0% juveniles and 16.3% infants. 30% females were having infants. The adult male to adult female ratio was 1 : 4.6 and adult female to infant and juvenile ratios were 1 : 0.30 and 1 : 0.33 respectively.

The Hanuman langurs of Balasore district harbour mainly in the villages and few groups in the forests. 43 groups were recorded in villages and only 3 groups in forests (Table 2). The 43 villages groups contained 683 langurs with a mean of 15.88 individuals per group. The social composition of consisted of 80 adult males, 369 adult females, 125 jeveniles and 109 infants (Fig. 3). The group size varied from 4 to 31 langurs. The sex ratio of adult males to adult females was 1 : 4.6. The ratio of adult females to infants and juveniles were 1 : 0.29 and 1 : 0.33 respectively. The three-forest group consisted of 43 langurs of which 4 were adult males, 24 were adult females, 6 juveniles and 9 infants (Fig. 3). The male-female ratio was 1 : 6.0 and ratio of the adult females to sub-adult was 1 : 0.62.

Table 1 : Group size and distribution of bisexual Hanuman langurs in Balasore.

Sl. No.	Locality	Habitat	Total	Adult Male	Adult Female	Juvenile	Infant
1.	Fuladi	V	24	2	13	3	6
2.	Fuladi	V	13	1	7	2	3
3.	Mundapara	V	15	2	7	3	3
4.	Padabangan	V	24	2	12	4	6
5.	Harar	V	24	2	14	3	5
6.	Kantabari	V	29	3	15	7	4
7.	Kans	V	12	1	5	2	4
8.	Haldipada	V	31	4	17	6	4
9.	Pundal	V	16	2	9	2	3
10.	Sangrampur	V	14	1	8	2	3
11.	Bharatpur	V	9	2	5	2	0
12.	Bharampur	V	26	3	16	4	3
13.	Kuldiha	F	12	1	7	2	2
14.	Chatarpahar	F	11	1	6	2	2
15.	Dhobagadia	F	20	2	11	2	5
16.	Nahag	V	15	2	9	2	2
17.	Kurunda	V	18	2	10	2	4
18.	Khajuridiha	V	22	3	12	2	5
19.	Goaldih	V	15	2	9	2	2
20.	Maitapur	V	20	2	10	2	6
21.	Pakar	V	12	1	7	2	2
22.	Durgapur	V	27	3	16	4	4
23.	Ainni	V	4	1	3	0	0
24.	Kharida	V	14	1	6	3	4
25.	Joynagar	V	6	1	4	1	0
26.	Kosipota	V	13	2	8	2	1
27.	Pudaria	V	14	2	7	5	0
28.	Anko	V	18	2	9	4	3
29.	Mathani	V	11	1	7	3	0
30.	Darada	V	15	2	7	4	2

Table 1 : *(Cont'd.)*

Sl. No.	Locality	Habitat	Total	Adult Male	Adult Female	Juvenile	Infant
31.	Dandi	V	13	2	6	5	0
32.	Debagram	V	20	3	11	4	2
33.	Khaprapoda	V	13	2	7	4	0
34.	Khuard	V	12	1	8	3	0
35.	Hatigarh	V	6	1	5	0	0
36.	Rajnagar	V	8	2	6	0	0
37.	Sekhbagh	V	9	2	7	0	0
38.	Gobarghata	V	24	3	10	7	4
39.	Gobarghata	V	16	1	10	2	3
40.	Gobarghata	V	4	1	2	0	1
41.	Laxmannath	V	17	2	10	2	3
42.	Amliatha	V	19	2	7	5	5
43.	Banida	V	13	1	7	3	2
44.	Nahara	V	20	2	9	4	5
45.	Khurumthapatna	V	19	2	8	5	4
46.	Balim	V	9	1	4	3	1
	Total		**726**	**84**	**393**	**131**	**118**
	Mean		**15.78**	**1.82**	**8.54**	**2.84**	**2.56**

Table 2 : Habitat wise distribution of Hanuman langur in Balasore.

Habitat	Total	Adult Male	Adult Female	Juvenile	Infant
Forest	43	4	24	6	9
Village	683 + All male 16	80	369	125	109
Total	**742**	**84**	**393**	**131**	**118**

There is a Wildlife Sanctuary called Kuldiha at Balasore district an area of 272 sq. km. The Sanctuary is declared mainly for elephant protection with other fauna. The entire area is undulating and hilly terrain with two motorable approach roads. There are few foot trails in side the forests. The sanctuary was visited twice and only 3 groups of langurs were sighted. Only one group consisted of 12 langurs were recorded, the other 2 groups could not be counted due to rapid disappearance.

Inquiry from the forest personnel inside the forests revealed that the langur population is less in the Sanctuary.

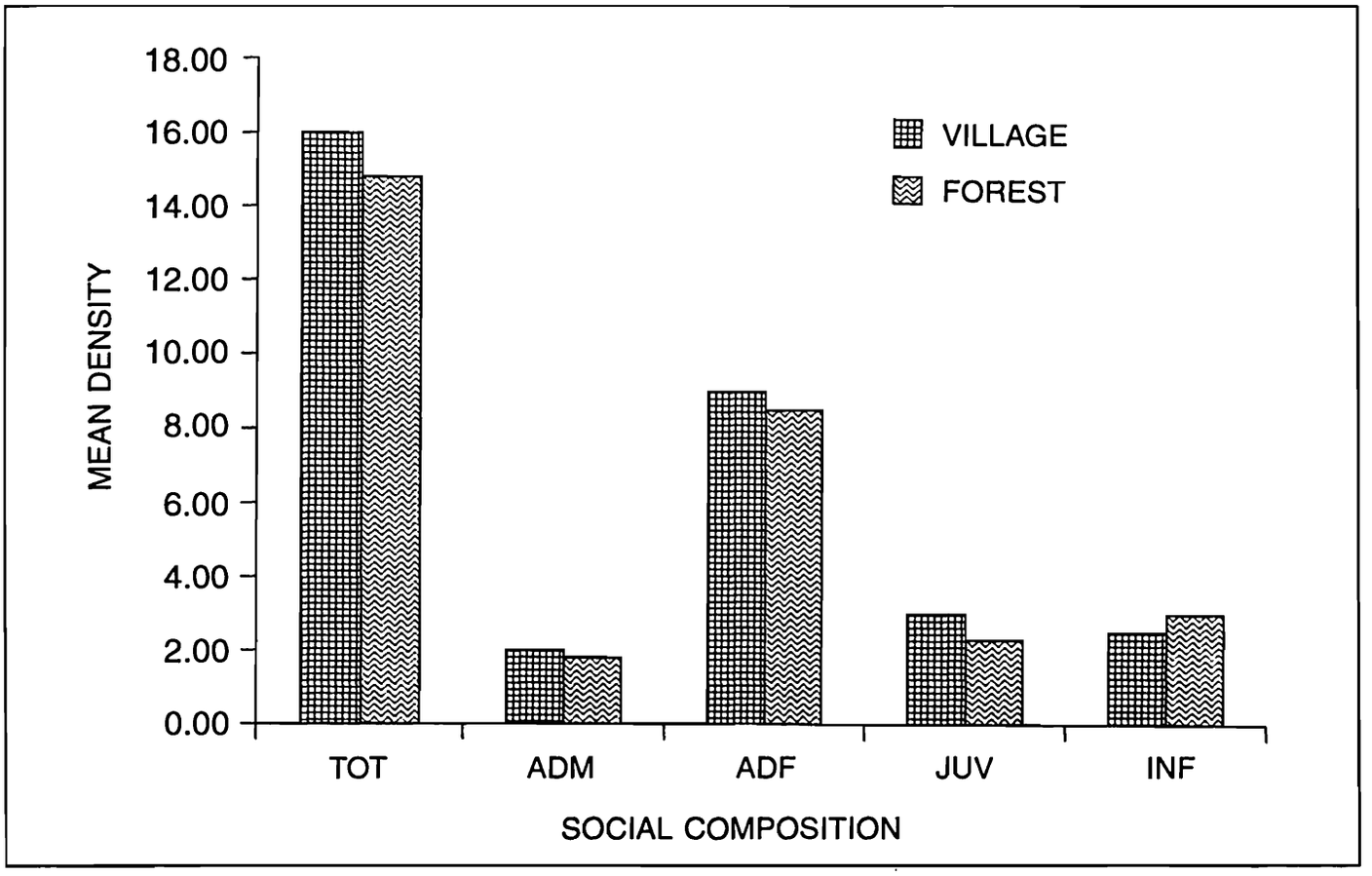

Fig. 3 : Mean density of Hanuman langur of Balasore district.

DISCUSSION

The present survey indicates that the Hanuman langurs inhabit in the villages even in the forests their presence is negligible. 92% of Hanuman langur groups are recorded in villages and these villages represented the most favourable habitat category at Balasore district. In this district the villages afford ideal physical habitat of langurs as big roosting tree, agriculture fields, vegetable gardens and orchards with abundant food and shelter for the langurs which in turn lead to direct competition with human population around the villages and agricultural lands. Due to extensive crop depredations and damage of property caused by the langurs, the villagers repeatedly requested the survey team for removal of langurs.

The monkeys in India for centuries enjoyed sacred status due to religious and philosophical belief. The villagers have become increasingly intolerant of langurs and interested for their translocation to other areas. The changing social mores were eroding the sacred image of the monkeys, once they were enjoying leads to decrease of population of langurs in the district in recent times.

Field Survey of Balasore district revealed that villages contained the majority population of Hanuman langurs. The forested areas of district exist in Nilgiri and Kuldiha on the western part; and a small partly forests in the eastern fringe near Bay of Bengal and sporadic plantations in the north. The Hanuman langurs however, not encountered in the eastern and northern fringe forests. The choice food is the main reason for their harbour in the villages.

Nayagarh (19°54'–21°34' N, 84°30'–85°19' E), another district of Orissa, where 1580 km^2, was surveyed that was about 40% of the total area of the district and 30 groups of Hanuman langur were counted (Chaudhuri *et al.* in 2007). In Balasore district (21°04'–21°59' N, 86°22'–87°29' E) 50 groups of Hanuman langur were sighted with a total of 742 langurs. In Nayagarh, the 30 groups contained 748 langurs. Habitable area for the langurs in Nayagarh are mostly hill forests that provide variety of food items and good shelter but the langurs inhabiting Balasore district solely dependent upon agricultural produce. The group size of Nayagarh langurs was larger than Balasore Population. The findings of these two districts of Orissa revealed that the forest habitat can support larger langur group size than that of village groups, where the competition were more amongst the groups for food and shelter in the villages. So, the groups in the villages were split into smaller unit to avoid conflicts and survival.

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