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SURVEY OF NON-HUMAN PRIMATES OF THE THREE DISTRICTS OF WEST BENGAL

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Introduction

For centuries the monkeys in India survive because of their sacred status. The religious and philosophical beliefs and tolerance towards these animals are the factors for the rigorous protection that they have enjoyed for a long period even after independence. In the present time, breaking down of these taboos and the rapid cultural changes are the factors that majority of the people no longer considered the monkeys as sacred but are taken as pests and destructive agents to their crops and property, The two common species of monkeys that are found in many parts of India and occupy diverse habitats, ranging from dense forests in montane regions to open lands and human habitations, are the rhesus macaque (*Macaca mulatta*) and the hanuman langur (*Presbytis entellus*).

The three districts of West Bengal—North 24-Parganas, Howrah and Hooghly have been referred to Zoological Survey of India by the Chief Wildlife Warden of West Bengal for surveys of non-human primates. The Forest Department received frequent complaints about the widespread depredation of the crops and the damage caused to the properties by the monkeys from these districts. Survey of the three districts was conducted from 25 March to 14 April, 1991 and this paper contain the findings of the census.

Non-Human Primates of West Bengal

In India 15 species of non-human primates are known to occur excepting the three species of tree shrews. These include 7 species of macaques, 5 species of leaf eating monkeys, 1 species of ape and 2 species of loris. Out of these only one species of leaf eating monkey, the Hanuman langur (*Presbytis entellus*), and two species of macaques, the Rhesus macaque (*Macaca mulatta*) and Assamese macaque (*Macaca assamensis*) are known to occur in West Bengal. However, their distribution, abundance, social structure, present status, etc., in different districts of West Bengal have not been known. The two other primates—the Capped langur (*Presbytis pileatus*) and Hoolock gibbon (*Hylobates hoolock*) were introduced in the forests of Sukna, Darjeeling district.

Field Studies of Non-Human Primates of West Bengal

In spite of the occurence of non-human primates in many parts of West Bengal not much work has been done on the monkeys. Mandal (1964) studied the behaviour of rhesus macaque in the Sunderbans. Southwick *et al.* (1964) conducted a road side survey in some areas of West Bengal to study the distribution and abundance of non-human primates. Mukherjee and Gupta (1965) studied the habits of the rhesus macaque in the Sunderbans. Khajuria (1966) published a brief account of the distribution of Assamese macaque in certain parts of Darjeeling district. Oppenheimer (1973, 1976a, 1976b, 1977) studied the hanuman langur at Singur. Mukherjee *et al.* (1985) conducted a survey of Darjeeling district and studied the distribution, abundance and social structures of rhesus and Assamese macaques.

Ecology of The Survey Areas

The state of West Bengal lies in the eastern side of India, extending from 22° to 27° north latitude and from 86° to 90° east longitude. It is composed of about 88,000 sq. km area. Approximately 64% of the total area of West Bengal is under cultivation. The major crops are rice, jute, potato, wheat and mustard. Forest areas in West Bengal are largely in the Sunderbans and in the north Bengal and is about 11,000 sq. km. The climate is tropical and it varies from season to season. The winter season is from November to February. The summer season is from March to June when it is hot in the plains but in the foothills and mountains more moderate temperatures prevail. The monsoon season, extending from July to October, is hot and humid. The rainfall is heavy. Almost entire rain is received during the monsoon season but summer and winter rains are fairly common. The highest humidity is reached in the monsoon season (Table I).

Survey Methods

Villages, towns, cities, temples, road side and forest were surveyed during the period under study. The observations were carried out on foot or by a vehicle. The surveys were carried out from early morning to late at evening and the areas were searched thoroughly for the presence of monkeys and the local people were enquired upon the presence of monkeys and the problems they face due to their presence in the area. The methods that were used to locate the monkeys were road side survey and transect. The procedure adopted by the party is to move slowly and stop at suitable places and scan the areas thoroughly and enquired about the presence of monkeys. The visual and auditory signals were utilised for locating the groups. A slow moving vehicle (an Ambassador car placed at the disposal to the survey party by

the Forest Department of West Bengal) was used with 4 observers to locate the monkeys.

Once a group was located the notes on their social structure, habitat, interactions with man and other animals, if there is any, were noted down. Attitude of the local people about these groups was enquired upon and recorded. The mechanical aid that was used in the field was binoculars.

RESULT OF SURVEY

(A) *North 24-Parganas District* : In this district 2500 sq. km. areas was surveyed and 17 groups of hanuman langur were sighted. Out of this 14 groups were bisexual and 3 were all male groups. These 17 groups composed of 189 animals of which 29 were adult males, 84 adult females, 22 juveniles and 39 infants. It was not possible to classify the rest 15 individuals. The group size varies from 2 to 35. This provide a population estimate of 0.007 groups per sq. km. comprising of 0.075 individuals per sq. km. The average group size of bisexual grous was 12.50 individuals. The 14 bisexual groups composed of 18 adult males, 84 adult females, 22 juveniles and 39 infants and 15 unclassified individuals. In the 17 groups a total of 12 new born infants were observed. These 17 groups of hanuman langur were seen in four habitat categories-12 groups were located in the villages, 3 groups were seen in temples, 1 group was recorded from bazar and the other goup was observed in the forest. The total number of langurs counted in 12 village groups was 101, which composed of 22 adult males, 49 adult females, 11 juveniles and 19 infants. The adult male and adult female ratio was 1 : 2.89 and the adult female to juvenile and infant ratio were 1 : 0.26 and 1 : 0.46 respectively. The three temple groups composed of 52 langurs of which 4 were adult males, 25 adult females, 6 were juveniles and the rest 17 were infants. The sex ratio of adult male to female was 1 : 6.25 and the adult female to juvenile and infant were 1 : 0.24 and 1 : 0.68 respectively. There was significant difference in the village group and one of the temple group of Dakshineswar.

A group of 15 langurs was seen in Badu Bazar but individual counts was not possible in this group. One group was located in the Parmadan forest and it composed of 3 adult males, 10 adult females, 5 juveniles and 3 infants. This indicates that the bulk of the hanuman langurs population in this district is distributed in village habitat category. However, this idea does not provide an accurate concept of relative abundance habitat wise distribution of hanuman langur in whole of West Bengal. The social structure and the habitats where the groups were seen are given in Table II and their distribution is given in Fig. 1.

(B) *Howrah District* : In this district 730 sq. km. area was surveped and 29 hanuman langur groups were observed, out of which 25 were bisexual groups and 4

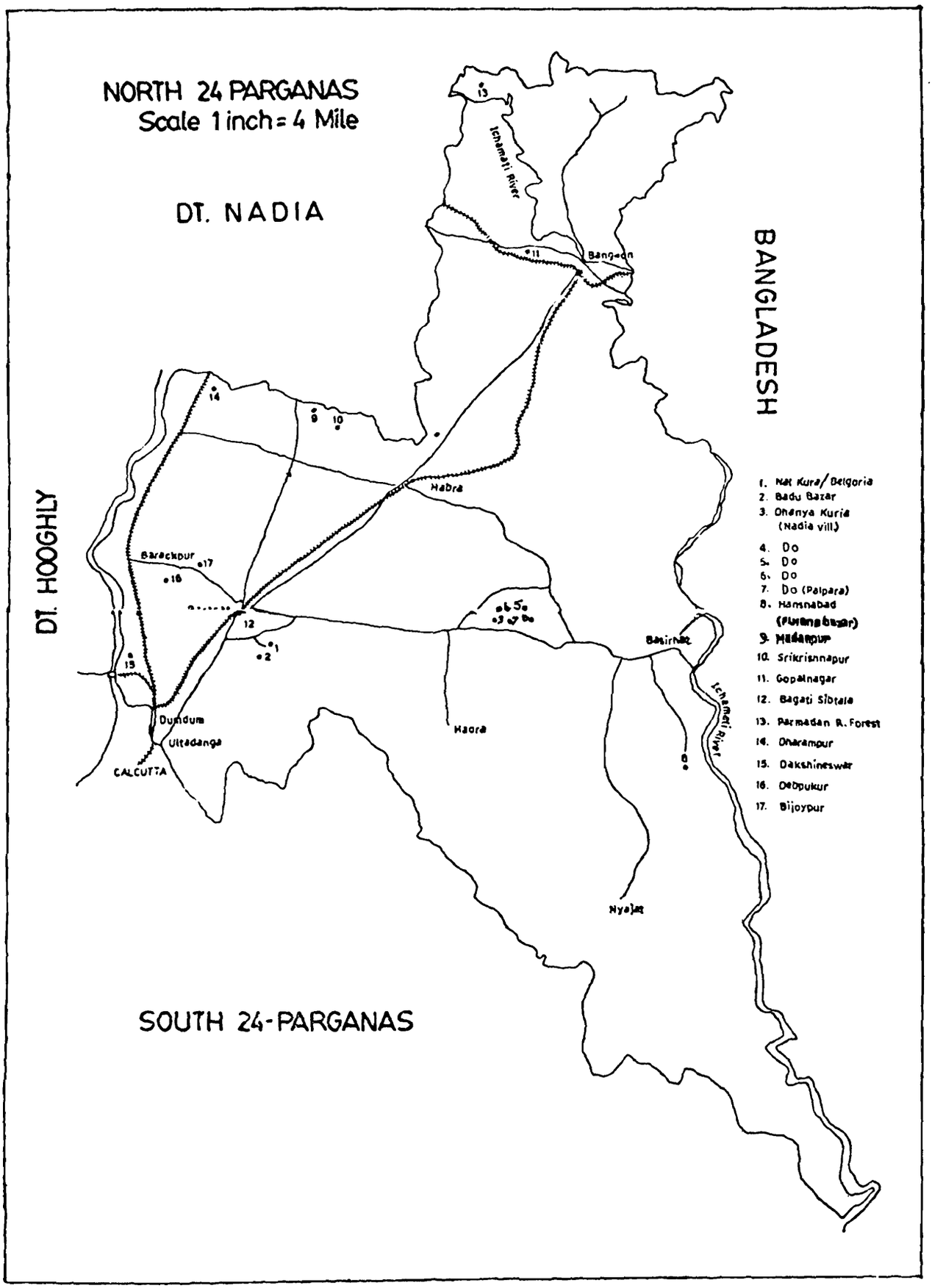

Fig. 1. Map showing the distribution of hanuman langur groups in North 24-Parganas district.

were all male groups. This 29 groups composed of 432 langurs of which 80 were adult males, 206 were adult females, 59 were juveniles and 77 were infants as also the 10 unclassified individuals. The group size varies from 7 to 35. This gives a population estimate of 0.040 groups per sq. km. and 0.59 individuals per sq. km. The average group size of bisexual groups was 15.95 individuals and composed of 41 adult males, 206 adult females, 59 juveniles and 77 infants. A total of 27 new born infants were observed in the 29 groups. These groups were inhabited in two habitat categories. Six groups were inhabited in the temple and the rest 23 groups were located in the villages,

The 6 temple groups containing 87 individuals with an average group size of 14.5 individuals and composed of 13 adult males, 42 adult females, 15 juvenilec and 17 infants. Out of the 6 temple groups one was all male group.

The 23 village groups contained 345 individuals with an average group size of 15.00 individuals and composed of 67 adult males, 164 adult females, 44 juveniles and 60 infants and 10 unclassified individuals.

The sex ratio of adult male to adult female was 1 : 3.23 and 1 : 2.44 in temple and village groups respectively. The adult female to juvenile and infant ratio were 1 : 0.35, 1 : 0.40 and 1 : 0.26, 1 : 0.36 in temple and village groups respectively. It was not possible to classify the 10 individuals of the Salap bazar village group. Like North 24-Parganas the bulk of the hanuman langur population is distributed in the villages. Next to village the langurs inhabited in the temple where the food and shelter are easily available and the groups feel secured. The habitat, socirl structure and group size of these groups are given in Table III and the distribution is shown in Fig. 2.

(C) *Hooghly District* : A total of 1050 sq. km. area was surveyed in this district and 33 langur groups were recorded out of which 4 were all male groups and 2 groups were with a single male each and the rest were bisexual groups. This composed of 367 langurs of which 63 were adult males, 171 were adult females, 51 were juveniles and 70 were infants and 12 unclassified individuals. This gives a population estimate of 0.03 groups per sq. km. and 0.035 individuals per sq. km. respectively. The average group size of bisexual groups was 12.44 individuals and composed of 32 adult males, 171 adult females, 51 juveniles and 70 infants. A total of 26 new born infants were seen. The groups in this district can be divided into two habitat categories—the village and the temple. There were only 5 temple groups and the rest were village groups. The Konnagarh temple group contained one Bonnet macaque. The bisexual temple groups contained 8 to 33 langurs. Only one temple group composed of a single adult male. The 5 temple groups contained 65 individuals which composed

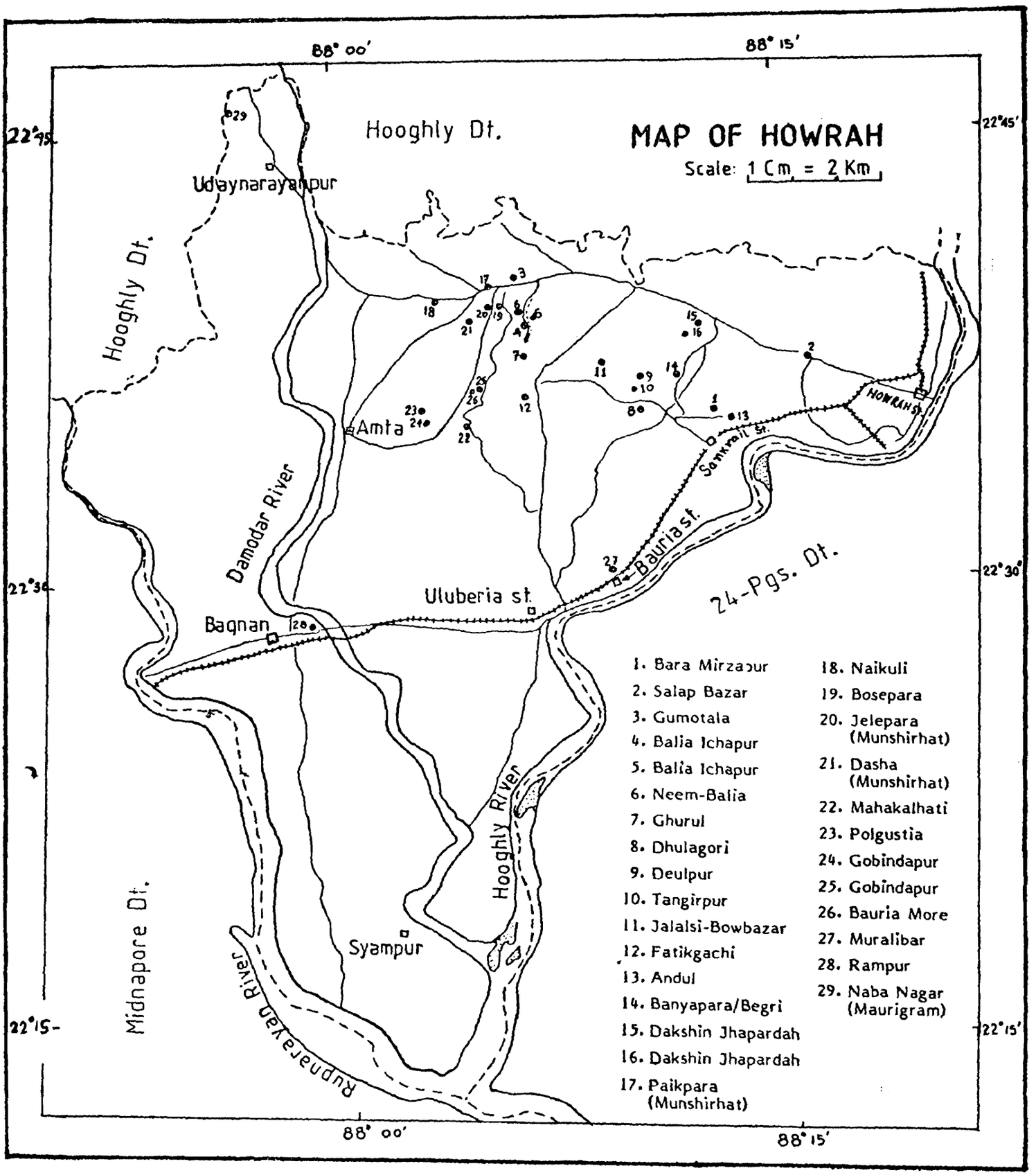

Fig. 2. Map showing the distribution of hanuman langur groups in Howrah district.

of 6 adult males, 33 adult females, 14 juveniles and 12 infants. The average group size was 13.00.

The village groups contained 3 to 21 individuals. In one village group only 2 adult females were counted and the rest of the members were not seen. The village groups contained total of 302 langurs with 57 adult males, 138 adult females, 37 juveniles and 58 infants and 12 unclassified individuals. The average group size was 10.35. The sex ratio of adult male to adult female was 1 : 4.25 and 1 : 2.42 in temple and village groups respectively. Like the previous two districts in this district also the bulk of the langur population is in the village. The habitat, social structure and the group size of different groups of langur in this district are given in Table IV and their distribution is shown in Fig. 3.

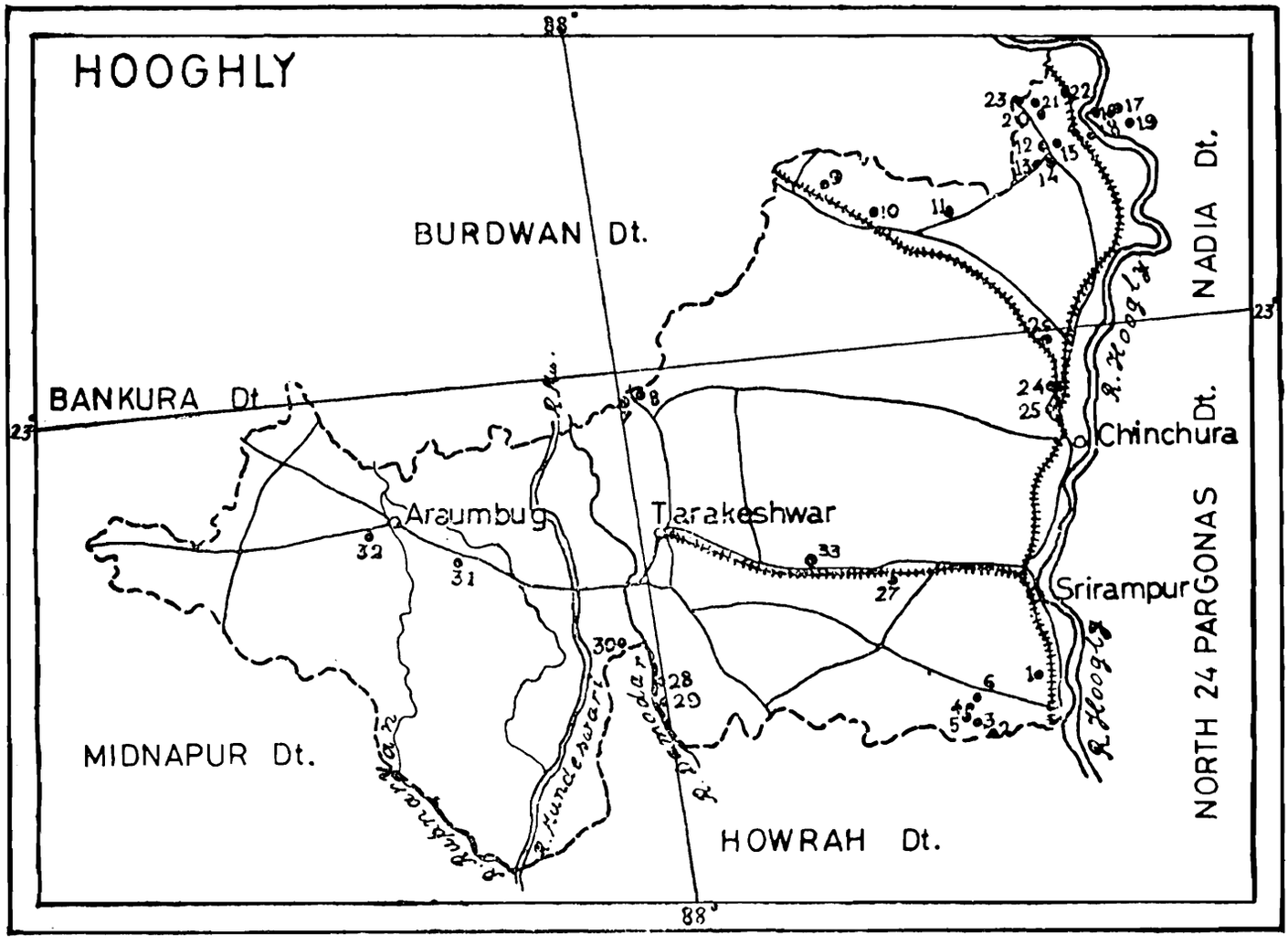

Fig. 3. Map showing the distribution of hanuman langur groups in Hooghly district.
1. Konnagarh. 2. Chamrail. 3. Majheraat. 4. Kalipur. 5. Kalipur (Krishnapur). 6. Chanditolla. 7. Khanpur. 8. Balidanga. 9. Baichigram. 10. Simlagarh. 11. Mondalia. 12. Karolla. 13. Karolla. 14. Somra. 15. Sukharia. 16. Somra. 17. Somra. 18. Sukharia (Baligori). 19. Sukharia (Siddeshwar). 20. Ghose Pukur. 21. Bankipur. 22. Bankipur. 23. Natagarh. 24. Konsoti (Tribeni). 25. Bagati Sibtola (Tribeni). 26. Kazidanga. 27. Dattapara. 28. Rashidpur. 29. Rampur 30. Shyampur. 31. Mayapur. 32. Kalipur College. 33. Dakati Kalibari (Singur).

Population Composition and Habitat Distribution

Out of total 988 individuals counted in all the three districts, 18.02% were adult males, 48.30% were adult females, 14.00% were juveniles and 19.68% were infants. The overall sex ratio of adult male and female was 1 : 2.68 and the adult female to juvenile and infant were 1 : 0.28 and 1 : 0.40 respectively. However, some significant differences in population composition between different survey categories did occur. The village represented the most important habitat categories for the langurs as it contained the bulk of the population. Villages afford ideal physical habitat for langurs as large trees, agricultural fields and orchards provide abundant food supplies and shelter, the water is available in irrigation canals and ponds and the houses provide them the shelter against the rains and dust storms. The major disadvantage of the village habitat for monkeys exist in the villages as it afford plenty of trees to feed, an ideal habitat for the langurs, and by the tolerance and consent of the villagers. For centuries this tolerance has been maintained by social tradition and religious belief. Currently this tradition and belief are undergoing rapid changes and the attitudes of the villagers toward monkeys are also changing. This and the loss of habitat are the main factorsfor the conservation of monkeys in the villages. Many villagers reported to the survey party that they could no longer afford to have monkeys in their villages as theyraid their agriculture crops and damage their houses and occasionally attack the villagers. The monkeys in the villages are now trapped, driven away and killed. The villagers informed the survey party that they engaged professional trappers to trap or to kill the monkeys.

Conclusion

The present survey indicates that among the three districts the hanuman langur population is more in Howrah district (Fig. 4). Most primates are graminivorous and frugivorous and are in direct competition with human population around villages and in agricultural lands. The villagers have become decreasingly tolerant of monkeys and are interested in their removal. Changing social mores of common people are eroding the scared image of the monkeys and account for lessening of one time stringently protective attitudes.

Habitat deterioration, pressure of human population, changing human attitude, hunting and trapping are the forces threatened to decimate primate population throughout the world. Several primate species are now approaching extinction. It is apparent from the present trend that the primate populations can become extinct even in areas where they are common and generally honoured and revered if the factors which are acting against them are not checked. So, it becomes necessary to undertake more vigorous conservation and management programmes and field studies to protect

the non-human primates. From the present survey and from the enquiries from the villagers it can be concluded that most of these factors are working against the con-

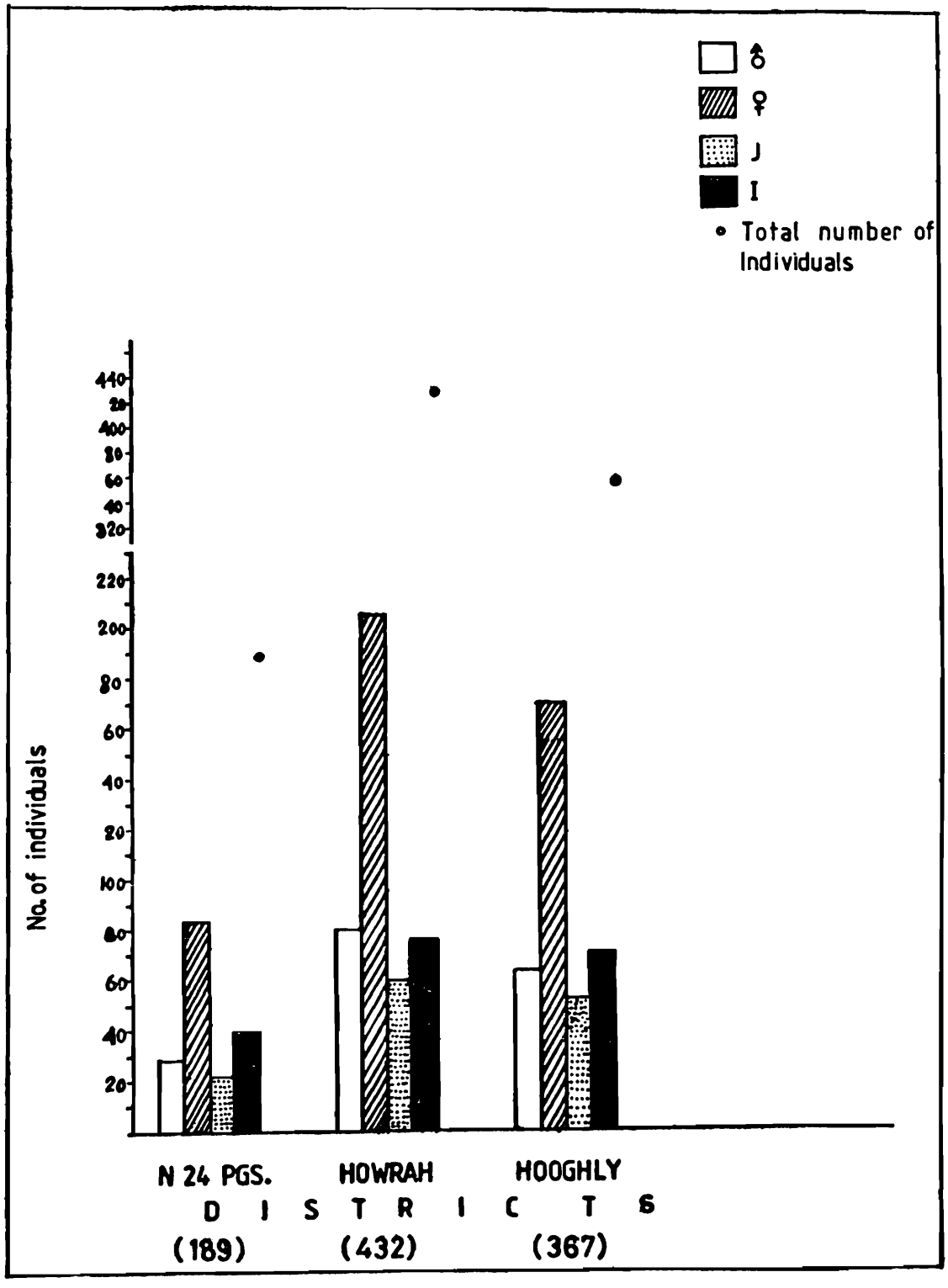

Fig. 4. Group sizes and compositions of hanuman langur groups in three different districts

servation of primates in West Bengal. The villagers in the study area no longer tolerate the monkeys. Due to extensive crop depredations and property damage caused by the langurs the villagers encourage trapping and killing of monkeys.

SUMMARY

A survey of non-human primates of the three districts of West Bengal *viz.*, North 24-Parganas, Howrah and Hooghly was conducted in the months of March-April, 1991 to find out the abundance, distribution and man-monkey relationship in these districts. The Forest Department of West Bengal has referred to ZSI to conduct this survey as they received frequent complaints from the villagers about the wide spread depredation of crops and damage to public properties caused by the monkeys. The survey conducted revealed the presence of hanuman langur (*Presbytis entellus*) in these three districts. The survey also revealed that the bulk of hanuman langur population, in all the three districts, is distributed in the village habitat and next to village the langurs occupied the temple habitat.

From the enquiries of the villagers it was apparent that the man-monkey interactions were frequent. Changing social mores of villagers were eroding the sacred image of the monkeys that they were enjoying so far and account for the decrease in the population of monkeys in the villages.

TABLE—I

Some ecological features of the three districts.

Characters	N 24-Parganas	Howrah	Hooghly
Area	14136 sq km (N & S)	1467 sq km	3149 sq km
Longitude	88°15'-89°0'E	87°47'-88°23'E	87°0'-88°30'E
Latitude	22°10'-23°15'N	22°13'-22°50'N	22°37'-23°13'N
Rainfall	1579 mm	1676 mm	1516 mm
Temperature :			
Summer	25.6°C	26.1°C	26.1°C
Winter	21.1°C	23.9°C	23.9°C
Humidity	30-95%	30-95%	30-95%
Human Population (1981 census)	1,07,39,000	29,66,000	35,57,000

TABLE—II

Showing the distribution and social structure of hanuman langur of North 24-Parganas district

Sl. No.	Locality	Habitat	Male	Female	Juvenile	Infant	Total
1.	Nalkura/Belgoria	V	1	1	—	—	2
2.	Badu Bazar	B	—	—	—	—	15
3.	Dhanyakuria	V	1	4	—	—	5
4.	—do—	V	7	(all male group)			7
5.	—do—	V	1	4	—	—	5
6.	—do—	V	2	3	2	2	9
7.	Pal Para (—do—)	V	2	11	2	8	23
8.	Hasnabad (Purana Bazar)	T	2	(all male group)			2
9.	Madanpur	V	1	5	1	3	10
10.	Srikrishnapur	V	2	6	2	2	12
11.	Gopalnagar	T	1	7	1	6	15
12.	Bagati Sibtala	V	1	7	2	2	12
13.	Parmadan	F	3	10	5	3	21
14.	Dharampur	V	2	(all male group)			2
15.	Dakshineswar	T	1	18	5	11	35
16.	Debpukur	V	1	5	1	2	9
17.	Bijaypur	V	1	3	1	—	5
		Total	29	84	22	39	189

(V= Village, B = Bazar, T = Temple, F = Forest)

TABLE—III

Showing the distribution and social structure of hanuman langur in Howrah district

Sl. No.	Locality	Habitat	Male	Female	Juvenile	Infant	Total
1.	Bara Mirzapur	T	1	5	2	2	10
2.	Salap Bazar	V	—	—	—	—	10
3.	Gumotala	V	2	8	1	2	13
4.	Balia Ichapur	V	2	9	3	3	17
5.	—do—	V	2	10	3	3	18
6.	Neem-Balia	V	3	16	5	3	27
7.	Ghurul	V	2	14	6	5	27
8.	Dhulagori	V	3	7	2	7	19
9.	Deulpur	V	2	5	1	3	11
10.	Tangirpur	V	1	6	2	1	10
11.	Jalalsi-Bowbazar	V	2	10	—	2	14
12.	Fatikgachi	V	2	6	1	3	12
13.	Andul	T	3	9	3	3	18
14.	Banyapara/Begri	V	2	14	4	3	23
15.	Dakshin Jhapardah	V	1	4	—	2	7
16.	—do—	V	8 (all male group)				8
17.	Paikpara (Munshirhat)	T	1	14	4	6	25
18.	Naikuli	V	1	5	1	1	8
19.	Bosepara	T	1	9	4	5	19
20.	Jelepara (Munshirhat)	T	2	5	2	1	10
21.	Dasha (-do-)	V	1	9	2	4	16
22.	Mahakalhati	V	1	6	1	1	9
23.	Polgustia	V	15 (all male group)				15
24.	Gobindapur	V	11 (all male group)				11
25.	—do—	V	1	5	2	1	10
26.	Bauria More	T	5 (all male group)				5
27.	Muralibar	V	1	4	1	1	7
28.	Rampur	V	2	10	2	5	19
29.	Naba Nagar (Maurigram)	V	2	16	7	10	35
		Total	80	206	59	77	432

(V = Village, B = Bazar, T = Temple, F = Forest)

TABLE—IV

Showing the distribution and social structure of hanuman langur in Hooghly district

Sl. No.	Locality	Habitat	Male	Female	Juvenile	Infant	Total
1.	Konnagarh	T	1	6	1	3	11
2.	Chamrail	V	2	10	3	5	20
3.	Majheraat	V	2	11	2	—	15
4.	Kalipur	V	3	(all male group)			3
5.	Kalipur/Krishnapur	V	1	5	—	—	6
6.	Chanditolla	V	1	6	1	2	10
7.	Khanpur	V	1	6	2	1	10
8.	Balidanga	V	1	8	2	4	15
9.	Baichigram	V	1	7	2	6	16
10.	Simlagarh	V	1	(Solitary)			1
11.	Mondlai	V	2	9	3	7	21
12.	Karolla	V	10	(all male group)			10
13.	—do—	V	2	8	3	4	17
14.	Somra	V	1	3	1	1	6
15.	Sukharia	V	2	6	2	4	14
16.	Somra	V	12	(all male group)			12
17.	—do—	V	4	(all male group)			4
18.	Sukharia (Baligari)	V	1	6	—	3	10
19.	—do— (Siddheswari)	V	1	7	7	2	17
20.	Ghoshpukur	V	—	2	—	—	2
21.	Bankipur	V	1	6	2	2	11
22.	—do—	V	1	4	1	4	10
23.	Natagarh	V	1	5	3	2	11
24.	Konsti	T	1	(Solitary)			1
25.	Bagati Sibtala	T	1	7	2	2	12
26.	Kazidanga	V	1	2	—	—	3
27.	Dattapara	V	1	5	—	2	8
28.	Rashidpur	V	1	5	1	1	8
29.	Rampur	V	2	10	2	5	19
30.	Shyampur	V	—	—	—	—	12
31.	Mayapur	V	1	7	—	3	11
32.	Kalipur College	T	1	4	1	2	8
33.	Dakati Kalibari (Singur)	T	2	16	10	5	33
		Total	63	171	51	70	367

(V = Village, B = Bazar, T = Temple, F = Forest)

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