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Records of the Zoological Survey of India

**Census Survey and Population ecology
of Bonnet macaque *Macaca radiata*
(E. Geoffroy) in South India**

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Zoological Survey of India

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INTRODUCTION

Populations of the commoner species of non-human primates like, Rhesus macaque *Macaca mulatta*, Bonnet macaque *Macaca radiata*, and Hanuman langur *Presbytis entellus* living in a feral condition, and also as commensal around human settlements in the countryside and towns as opposed to their forest populations, were quite sizeable in India. These rural and urban populations were treated with tolerance by the people on religious and ethical considerations. However, under mounting economic pressure, the traditional tolerance by the people tended to get eroded and transformed into confrontation, which put the survival of these populations under severe stress. Added to this, the commercial trafficking in species like Rhesus macaque, that developed in the wake of increased importance of its usage in biomedical researches especially in developed countries, and similar but relatively recent, spurt of usage of bonnet macaque and Hanuman langur for such purposes within the country, contributed to their general population decline. In order to ensure conservation of these species on a sustained yield basis, it soon became evident that baseline data on several aspects are to be collected, especially on the present general status of the populations of different species, the major habitats of these, and the significant ecological determinants affecting their survival and those needed for conservation. A series of nationwide surveys were, therefore, initiated in India for obtaining such an overview of the primate populations of above species under two projects, one for northern and the other for southern India from 1977 to 1980. Together the two surveys (north and south) by Zoological Survey of India represent the first ever total national surveys of non-human primates.

The surveys focused on the feral and commensal populations ranging in the rural and urban countryside, for twin considerations ; first, that more than the forest populations it is this section of population that is fast dwindling, and second, that being more accessible, these populations could be earmarked for sustained use in researches, if and when permissible on the basis of results achieved. Forest populations then could be naturally conserved in tact.

One of the earliest population surveys of non-human primate populations had been done in India (Southwick and Siddiqi, 1966 for the years 1959-65), which was mainly devoted to the Rhesus macaque in northern Indian states, for which a method of sampling the populations

living by road, rail, and canal sides was adopted. These population studies have since been continued through 1983. Mukherjee and Mukherjee (1972) had done parallel surveys for some of the same states and for the same species : Dolhinow and Lindburg (1980) surveyed the forest populations of rhesus macaque and Hanuman langur in the same region. The only prior population survey on bonnet macaque had been the one conducted by Rahman and Parthasarathy (1967) which was confined to the area of Bangalore, the capital city of Karnataka state. A similar survey of bonnets of Mysore city and nearby forests was done by Pirta *et. al* (1980) (which was published after writing of this paper was completed).

This report presents the results of census surveys conducted on the Bonnet Macaque *Macaca radiata* (E. Geoffroy), in the country side (rural and urban panchayat areas) in four states of southern India from 1977 to 1980, which represent the first ever extensive census surveys on the species. For other two species and further details see Kurup (1981, 1983, 1984). This work formed part of a project under the International Man and Biosphere Programme awarded to the author by the Department of Science & Technology, Government of India.

METHODOLOGY

The country populations of bonnet macaque show a skewed distribution, concentrating in preferred protected and remnant habitats. For this reason, a human demographic approach was considered to be more suitable. Accordingly, base line data on distributional parameters were collected through mail questionnaire programmes and the actual census data were obtained through direct sampling surveys. [Table 1 (a)]

The census region (states) was dealt with at three levels : District, Block and Panchayat (group of villages). Information in respect of each panchayat on the presence of monkey species, relative abundance in gross terms and the types of interaction with man in the locality was obtained through the questionnaires circulated through the Block Development Officers. This programme produced very reliable information on the micro-distribution and also the percentage of panchayats possessing monkey species, in respect of the four states.

This was followed by direct surveys for which blocks in each district were selected at random. Each panchayat of these blocks was subjected to intensive surveys, censusing the troops and collecting all relevant ecological and socio-biological factors on specially designed data sheets (for questionnaire forms and data sheets see Kurup 1981).

Estimations of the ratios of man troops per panchayat and mean troop size (number of individuals) have been obtained from these surveys. Statewise details of census coverage for bonnet macaque are given in table 1 (a) and (b).

Table 1. Population survey coverage for bonnet macaque in south India.

(a) Mail Questionnaire Coverage

Coverage	Andhra		Tamil		Total
	Pradesh	Karnataka	Nadu	Kerala	
Questionnaires send	12650	8600	12260	968	34478
Questionnaires returned	6168	4019	10542	860	21589
Percentage of return	48.73	46.73	85.98	88.84	62.61

(b) Direct Surveys. (Percentage in parantheses)

Nos. of districts covered/Percentage	18 (85.7)	19 (100)	13 (81.25)	10 (83.3)	60 (88.2)
No. of blocks covered/Percentage	36 (12.5)	49 (28)	45 (12)	120 (83.3)	250 (25.5)
No. of Panchayats covered/Percentage	2304 (12.4)	2401 (27.8)	1575 (12)	306 (31.6)	7086 (17.1)
Distance travelled (km)	7800	12200	3800	4000	27000
Area involved (km ²)	33982	53255	15509	32389	135135 (21.2)

Estimates of population figures for the species has been derived on the basis of the following formula.

$$P = tzN(M/Q)$$

Where P = population estimate ; t = mean troop per panchayat ; z = mean troop size ; N = total number of panchayats in the state ; M = number of panchayats with monkeys based on questionnaire answers ; and Q = total number of questionnaire answers received.

It may be particularly pointed out here that questionnaire data were utilized in the present case only for calculating the percentage of panchayats possession monkeys out of total number of panchayats in a state. This was estimated through the simple formula of $\frac{M}{Q} N$. Actual census parameters like mean number of troops per panchayat, mean

troop size and troop composition, are entirely based on the data collected through direct field surveys. These direct survey data were only extrapolated to the number of panchayats with monkeys in a state which figure was obtained through the questionnaires, (preceding formula) to project the census figures.

Table 2 gives statewide details of number of troops censused, mean troop per panchayat and mean troop size.

Table 2. Statewise numbers of bonnet macaque troops censused.

	Full count	Partial count	Record only	Total	Mean troop size	Mean troop/per panchayat
Andhra Pradesh	45	55	81	181	18.95 ± 1.5	1.50
Karnataka	222	165	682	1059	17.97 ± 1.06	2.00
Tamil Nadu	41	8	11	60	15.10 ± 2.2	1.15
Kerala	8	30	103	141	22.00	—
Total	316	258	877	1451	17.73 ± 1.4	1.55

However, for Kerala state, the population has been estimated somewhat differently, as in that state, true country populations of bonnets were scarce. At the same time, incidence of forest-fringe troops was found to be high over the eastern districts which border the Western Ghats. Here, virtually a total count was carried out which was feasible, owing to favourable factors such as the smaller area of the state, a very high percentage (86%) of questionnaire returns, and relatively fewer number of panchayats possessing monkeys as revealed by these questionnaires.

RESULTS

Census Figures :

Estimated population figures of bonnet macaque in the four states and also the densities in which they are found are given in table 3. The present census estimates a total population of 1,70,000 bonnet monkeys equivalent to 9,500 troops in the four states of southern India. As regards statewide population figures, Karnataka state has the maximum of all states, having a bonnet population of 80,000 (4,400 troops) followed by Andhra Pradesh with 60,000 (3,200 troops). Tamil Nadu is having 17,000 bonnets (1,100 troops) and least of all Kerala having 11,000 bonnets (500 troops). In terms of density also Karnataka leads where a bonnet monkey is assumed to be distributed in every 1.97 Km².

Lowest density of bonnet distribution is shown by Tamil Nadu, where it is 6.55 Km² per monkey. Viewed more realistically in terms of troops,

Table 3. Statewise population and density estimates the bonnet macaque in South India.

States	Absolute	Population Groups	Density		
			Bonnet Km ²	Km ² Bonnet	Km ² Groups
Andhra Pradesh	59979 ± 3662 (64000)	3165 (3200)	0.30	3.31	62.72
Karnataka	79264 ± 4116 (80000)	4529 (4400)	0.51	0.97	35.40
Tamil Nadu	16642 ± 1132 (17000)	1102 (1100)	0.15	6.55	98.90
Kerala	11110 ± 2904 (11000)	505 (500)	0.40	2.52	55.44
Total	166995 ± 11737 (170000)	9418 (9500)	0.34	2.94	52.12

(Rounded off figures in paranthesis); The number of troops given are on the basis of respective state's mean troop sizes.

one bonnet macaque troop is distributed every 35.40 Km² in Karnataka, every 62.72 Km² in Andhra Pradesh; every 98.90 Km² in Tamil Nadu; and every 55.44 Km² in Kerala. Kerala apparently has a bonnet monkey every 2.52 Km², but as predominance of semi-forest nature of the populations there. Actually true country populations in towns and villages away from forest were met with only in 54 panchayats (5.57%) with a total of 81 troops ($t=1.50$). However, 104 panchayats bordering forests, had 424 troops, indicating a high incidence rate ($t=4.07$). It is this latter section of the population that renders the density figures high, which will not be reflected if true country populations are viewed separately. Considered by itself, density in the countryside away from forests would be only one bonnet monkey per 20 Km²,

In calculating total geographical area, forested tracts in all the four states have been excluded. In states other than Kerala, country-

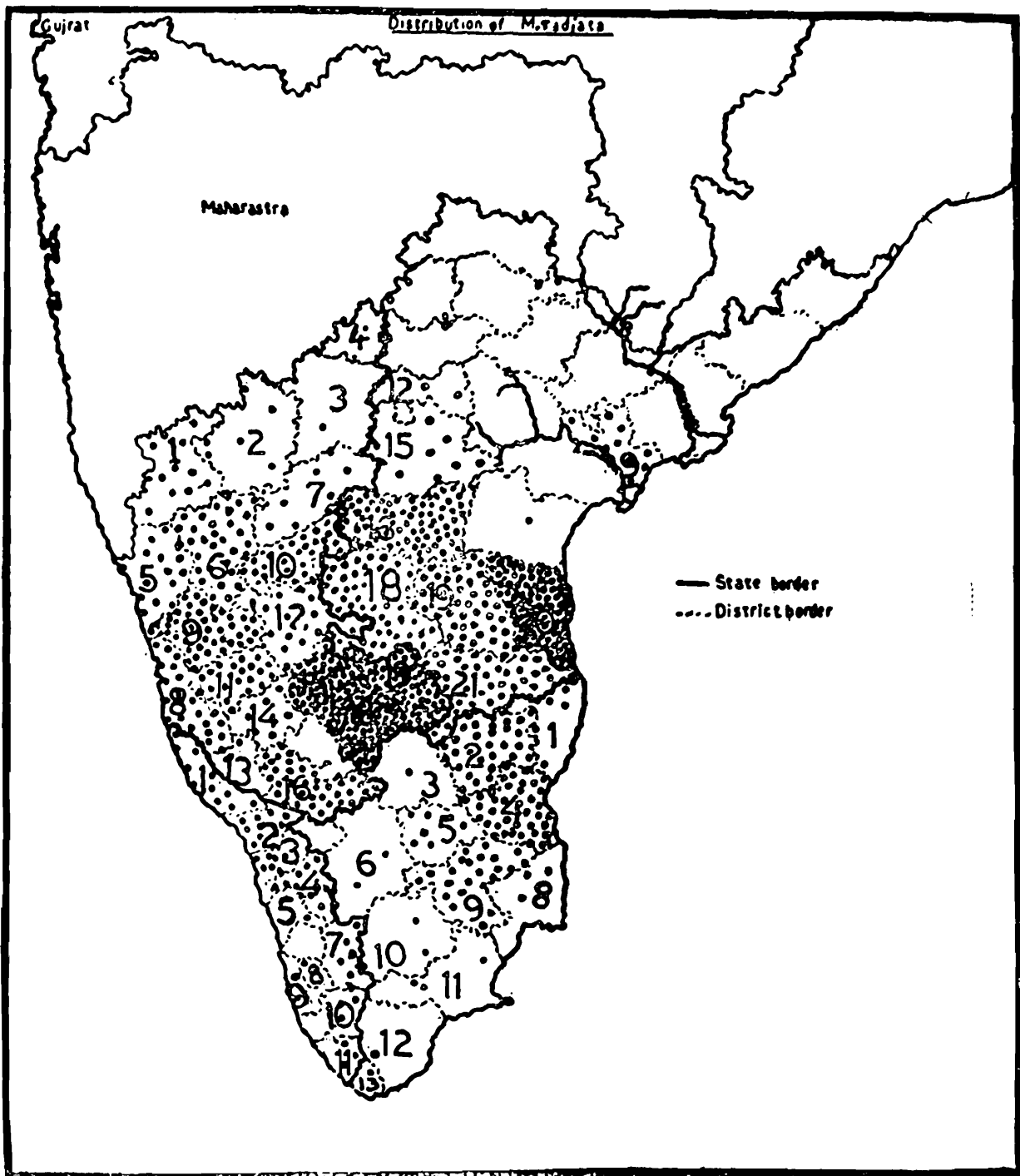


Fig. 1 : Districtwise population density of bonnet macaque. Each dot represents ten troops (one dot only for less than 10 troops).

sides bordering forests are not as populated by humans, and thus forming part of panchayat areas, as in Kerala.

Districtwise Estimates :

Since the panchayat is the basic geographical unit adopted, one advantage is that it is possible to project districtwise estimates of population figures. The distributional data collected through the questionnaires have given the added advantage of eliminating the districts devoid of bonnet macaques, thus projecting more realistic estimates that are

valid geographically also, rather than giving purely theoretical or statistical estimates which might have spread the figures over districts where bonnet macaques do not range. Distributional data collected through the questionnaires clearly established that unlike in other three states bonnet macaque in Andhra Pradesh, is extant only in nine of its 21 districts, mostly in the south and south-western parts of the state (see Appendix 1 & 2). Table 4 gives the districtwise population estimates of bonnet macaque in the states of Andhra Pradesh, Karnataka and Tamil Nadu.

Table 4. Details of Districtwise population estimation of Bonnet Macaque

Andhra Pradesh					
No.	District*	No. of questionnaires received	No. of panchayats with bonnets	No. of total panchayats	Estimated
1.	Anantapur	405	124	864	7519
2.	Chittoor	398	71	1303	6607
3.	Cuddapah	464	167	756	7734
4.	Hyderabad	149	3	632	374
5.	Mahabubnagar	493	30	918	1588
6.	Nellore	122	98	890	20322
7.	Krishna	142	8	925	1481
8.	Kurnool	394	240	829	14354
Total		2567	741	7117	59979

* Present in Prakasam district also, as shown in Appendix 1; however, questionnaire returns from there were not adequate.

Karnataka state					
No.	District	No. of questionnaires received	No. of panchayats with bonnets	No. of total panchayats	Estimated
1.	Bangalore	279	169	613	13345
2.	Belgaum	352	29	587	1738
3.	Bellary	101	46	321	5254
4.	Bidar	118	1	294	90
5.	Bijapur	161	7	589	920
6.	Chikmagalur	74	28	259	3522
7.	Chitradurga	199	25	448	2023
8.	Coorg	72	3	108	162
9.	Dharwar	291	67	619	5122
10.	Gulbarga	263	3	526	216
11.	Hassan	151	11	402	1052
12.	Kolar	279	154	511	10137

No.	District*	No. of questionnaires received	No. of panchayats with bonnets	No. of Total panchayats	Estimated
13.	Mysore	351	105	644	6924
14.	North Kanara	182	63	223	2774
15.	Raichur	137	12	411	1294
16.	Shimoga	240	107	432	6922
17.	South Kanara	389	93	445	3824
18.	Tumkur	280	194	560	13945
Total		3919	1117	7992	79264

Tamil Nadu

1.	Chengalput	765	21	1228	585
2.	Coimbatore	740	12	845	238
3.	Dharmapuri	518	7	599	141
4.	Kanyakumari	228	1	288	22
5.	Madurai	754	16	907	334
6.	North Arcot	1260	208	1623	4652
7.	Ramanathapuram	1025	18	1328	405
8.	Salem	726	50	776	928
9.	South Arcot	1508	271	1779	5552
10.	Tanjavur	1161	20	1477	442
11.	Tiruchirapalli	810	163	927	3239
12.	Tirunelveli	987	6	987	104
Total		10482	793	12764	16642

In Karnataka, the state having largest population of bonnets, Tumkur district contains more bonnet macaques than any other district, followed by Bangalore. Smallest population is in Bidar and then in Coorg. In Andhra Pradesh the largest population exists in Nellore district, followed by Kurnool; the smallest population is in Hyderabad and then in Krishna district. In the case of Tamil Nadu, maximum is in South Arcot and then in North Arcot and the smaller populations are in Kanyakumari and Dharmapuri districts. Highest bonnet monkey population of any one district in all three states is in Nellore district of Andhra Pradesh with Tumkur district in Karnataka in the second place.

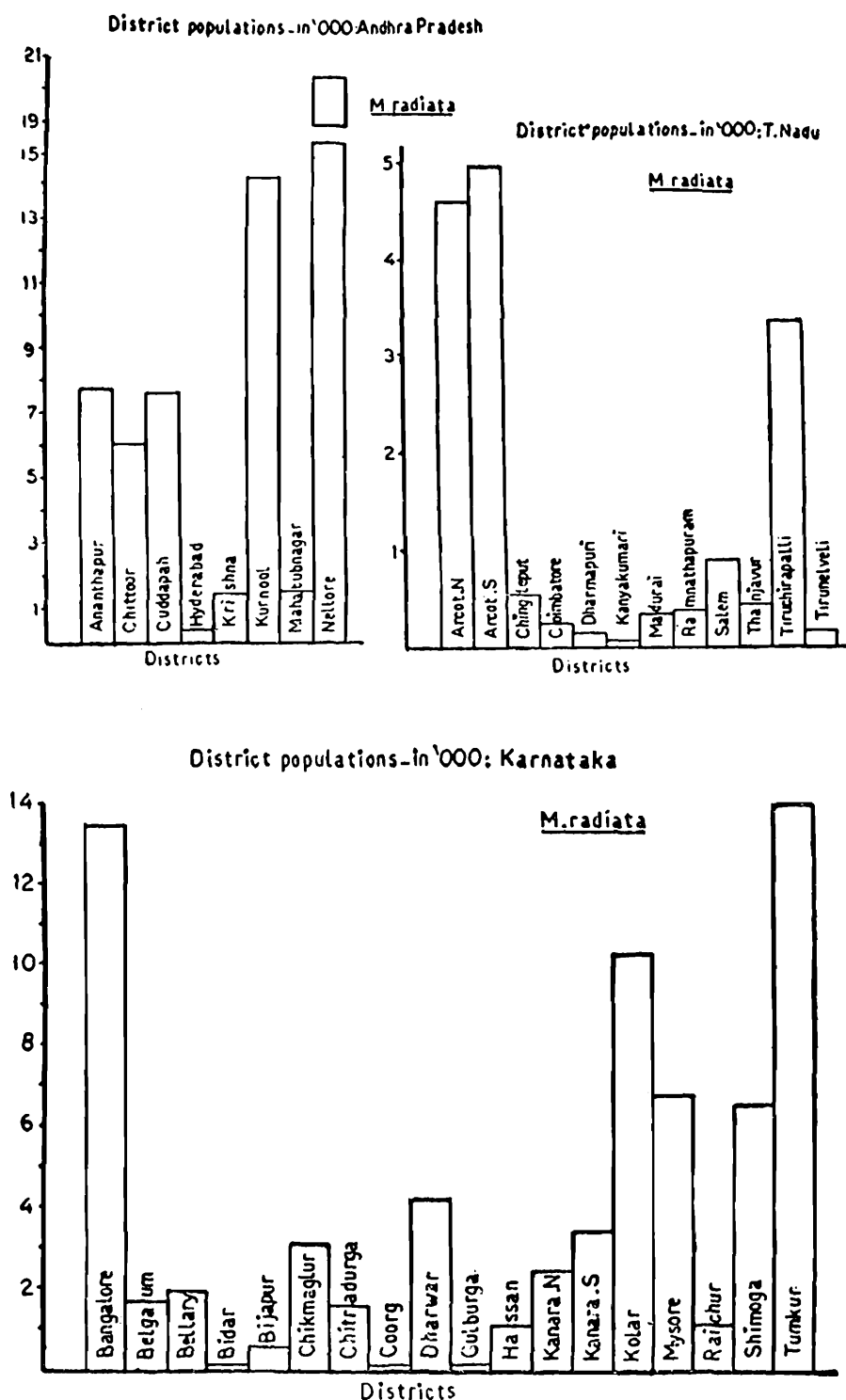


Fig. 2 : Relative size of populations of bonnet macaque in the districts of Andhra Pradesh, Tamil Nadu and Karnataka states.

Demographic Parameters :

A total of 1451 troops of bonnet macaques were recorded during the surveys of which troops composition of 316 troops could be counted fully ; others could be counted only partially or in terms of total group size, or merely recorded as occurring in the area (Table 2).

Troop size :

There was striking consistency of troop size, with the mean size falling close around 18, in states of Andhra and Karnataka where most of the populations occur.

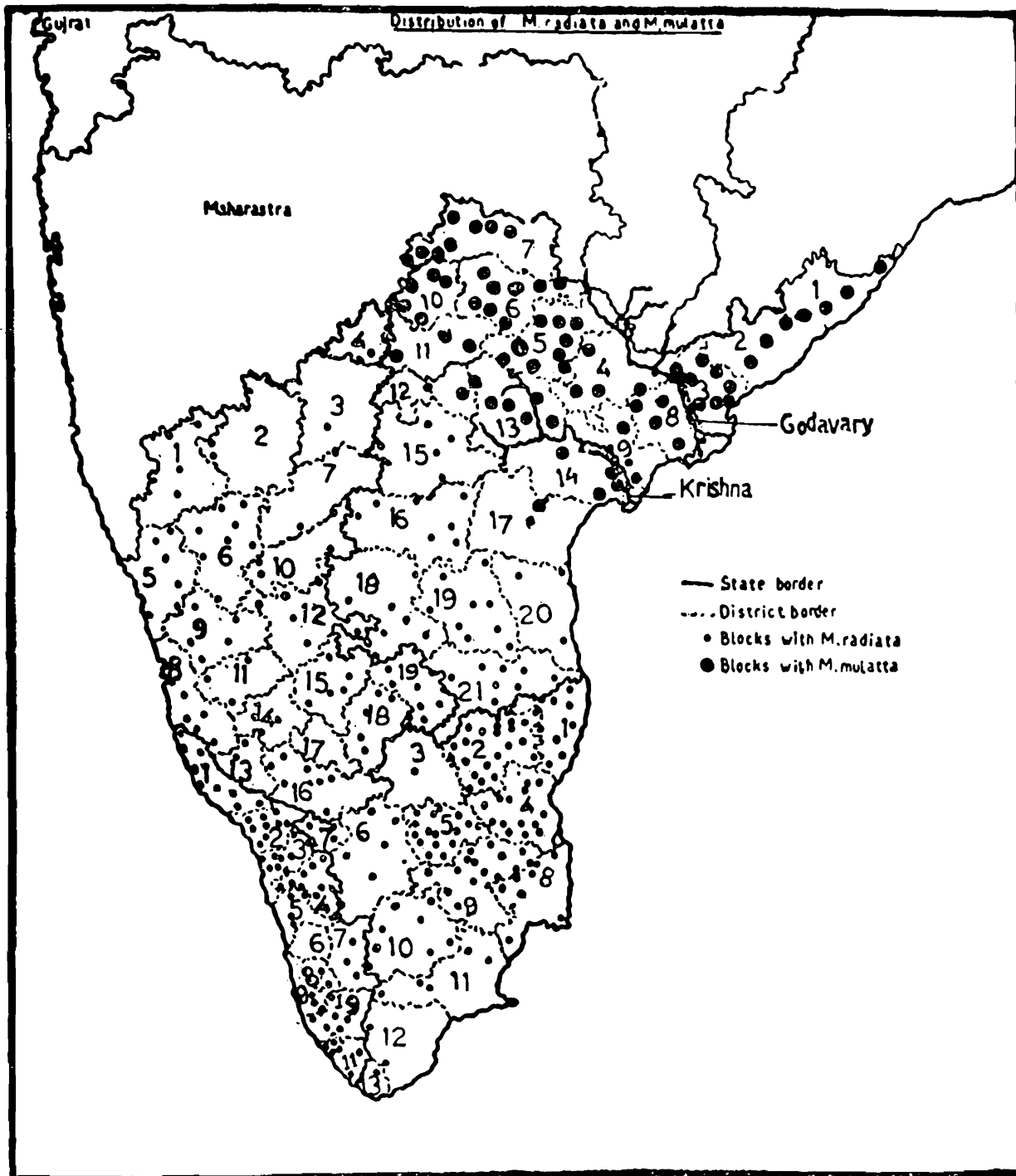


Fig. 3: Distribution of bonnet macaque and Rhesus macaque, *M. mulatta* in India. The spots represent blocks/taluks with either of the two species and not density of populations. It was commonly held that the river Godavari formed the dividing line between the distributional range of the two species. The findings of the present survey necessitate a revision of this assumption. It can be seen that bonnets have been displaced by the rhesus to south of river Krishna which is more of a dividing line as far as eastern peninsular India is concerned. Specific localities are given in Appendix 1. Northern limit of its distribution in the region runs from Vijayawada of Krishna district in the east to westward through northern portions of the districts of Prakasham, Mahabubnagar, and southern Hyderabad. Of the borderline districts only in Krishna and Prakasham, both the bonnets and rhesus were found to coexist. In Krishna district, besides in Durga temple in Vijayawada, bonnets exist in seven villages in chillakallu block and in four villages Avani-gadda

block. Rhesus are found in ten villages of Nuzzvid block. Similarly, in Prakasam district bonnets and rhesus were found to coexist at Darsi (Ca 15° 46' N, 79° 42'E) in Thalur block (southern most locality recorded for rhesus). (As regards the range limit of bonnet on the west in the northern peninsular India-outside the region curved under the present surveys—the available information is meagre. According to Kayama and Shekar (1981), Sanagadh area (21° 05'N, 73° 35'E) south of river Tapti in Gujarat is the northern most limit for bonnet and the Tapti river forms the borderline between the range of the two species in north western Peninsular India).

Districts :

Andhra Pradesh : 1. Sreekakulam. 2. Vishakapatnam. 3. East Godavari. 4. Khammam. 5. Warrangal. 6. Karimnagar. 7. Adilabad. 8. West Godavari. 9. Krishna. 10. Nizamabad. 11. Medak. 12. Hyderabad. 13. Nalgonda. 14. Guntur. 15. Mahabubnagar. 16. Kurnool. 17. Prakasam. 18. Anantapur. 19. Cudappah. 20. Nellur. 21. Chittoor.

Karnataka State : 1. Belgaum. 2. Bijapur. 3. Gulburga. 4. Bidar. 5. North Kanara. 6. Dharwar. 7. Raichur. 8. South Kanara. 9. Shimoga. 10. Bellary. 11. Chickmagalur. 12. Chitradurga. 13. Coorg. 14. Hassan. 15. Tumkur. 16. Mysore. 17. Mandya. 18. Bangalore. 19. Kolar.

Tamil Nadu : 1. Chinglepet. 2. North Arcot. 3. Dharmapuri. 4. South Arcot. 5. Salem. 6. Coimbatore. 7. Nilgiri. 8. Thanjavur. 9. Thiruchirappalli. 10. Madurai. 11. Ramanathapuram. 12. Thirunelveli. 13. Kanyakumari.

Kerala : 1. Cannanore. 2. Calicut. 3. Malappuram. 4. Palghat. 5. Trichur. 6. Eranakulam. 7. Idukki. 8. Kottayam. 9. Aleppey. 10. Quilon. 11. Trivandrum.

Note : Districts as in the year 1977. Now Andhra Pradesh has 23 districts ; T. Nadu 16 ; and Kerala 13 ; all realignments of above districts. In Karnataka, Mandya district could not be covered.

mean of 5 separate surveys were obtained as follows :

18.79 (N 39), 17.49 (N 89), 17.46 (N 13), 18.18 (81), 18.95 (N 45)).

However, mean troop size for Tamil Nadu at 15.10 is smaller, but that of Kerala at 22, much larger. A chi square test revealed, however, that interstate differences are not significant at 0.05 level.

The overall mean for 316 troops for which troop composition could be fully recorded is obtained as 17.84 individuals. But for reasons already mentioned, the monkey population in Kerala state is to be treated on a different footing as the environmental conditions of troops there are different. Number of troops that could be fully counted is also small (8). Most of these troops were those found living either in religiously protected sacred groves (Kavu) resembling remnant forest patches, or in areas close to forest-fringe and thereby displaying

characteristics more akin to those living in forest. Their higher mean troop size is not surprising in this respect. For analysis of census figures as well as of ecological features, the Kerala data are therefore treated separately. So excluding Kerala figures, the more appropriate mean size

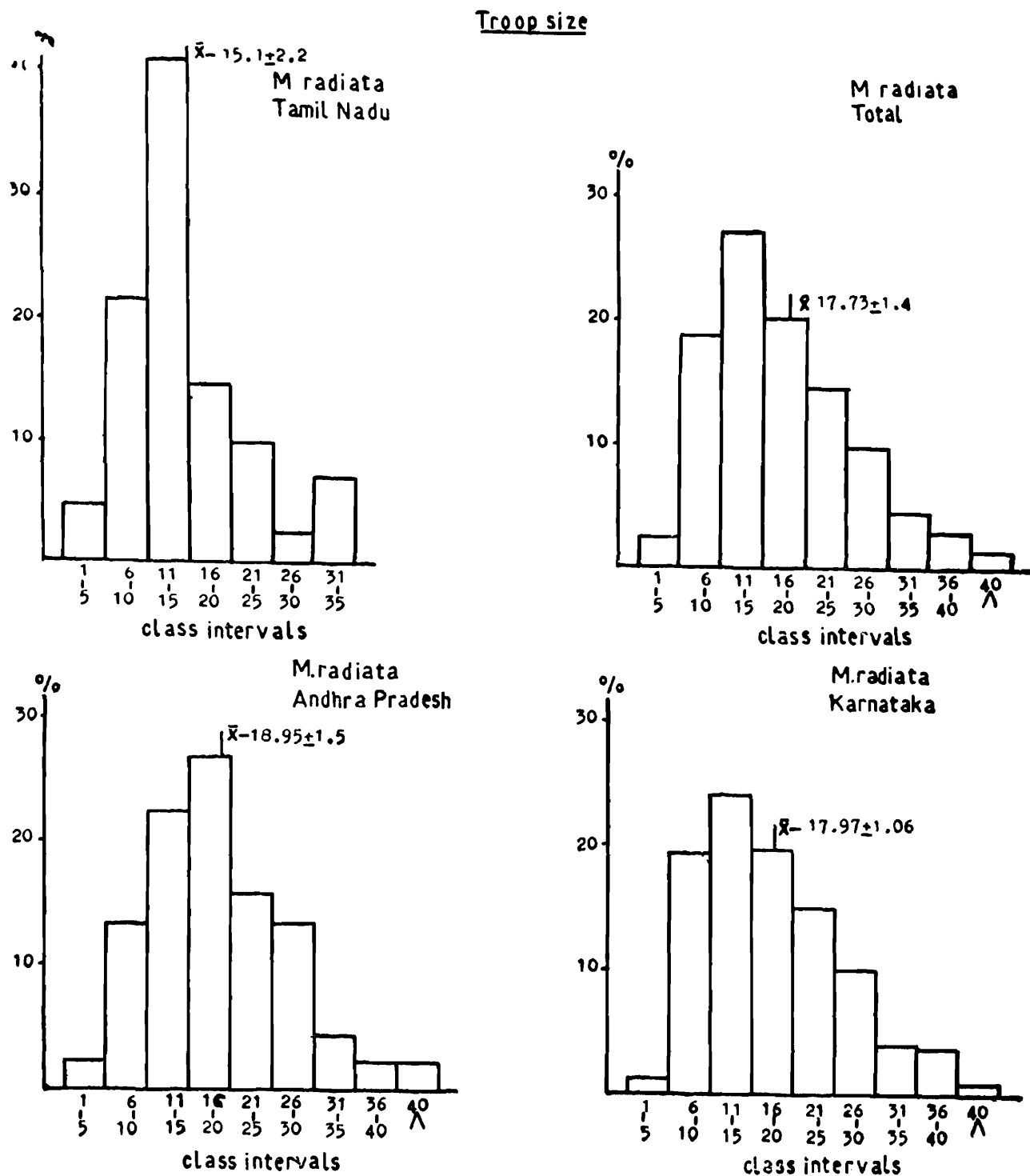


Fig. 4: Relative percentage frequency of troop size of bonnet macaque in different states and totally for the species.

for rural and urban bonnet troops in southern India, involving the remaining states, is obtained as 17.73 ± 1.40 individuals.

Troop composition and socionomic ratios :

The most significant part of any analysis of population census data is the one reflecting the reproductive vigour and resiliency. A number of

Table 5. Demographic parameters of bonnet Macaque

	N Troups	Mean troop composition					Indices (1 :-)							
		M	F	Sa	J	I	Total	M:F	A:Y	F:Sa+J+I	F:Sa	F:J+I	F:I	A:SA
Andhra Pradesh	45	3.84	6.13	3.11	2.28	3.58	18.95	1.60	0.90	1.46	0.51	0.96	0.58	0.31
Percentage		20.28	32.35	16.42	12.08	18.37								
		+5.99	6.95	5.52	4.85	5.83	0.76							
Karnataka	222	4.38	6.27	2.72	2.94	1.60	17.97	1.43	0.68	1.15	0.43	0.72	0.26	0.25
		24.09	34.90	16.00	16.08	8.93								
		+2.88	3.19	2.48	2.40	1.91	0.54							
Tamil Nadu	41	3.60	4.87	3.21	3.04	0.34	15.10	1.35	0.78	1.35	0.66	0.69	0.06	0.37
		23.90	32.31	21.32	20.20	2.27								
		+6.66	7.30	6.39	6.26	2.32	1.12							
Total		4.01	5.82	3.10	2.82	1.91	17.73	1.45	0.80	1.35	0.53	0.81	0.33	0.31
Percentage		22.73	33.17	17.36	15.86	10.68								
		2.38	2.68	2.15	2.08	1.76	1.40							

A—Adult ; Y—Young ; Sa—Sub adult.

ratios indicative of various factors involved, and having cumulative effect as determinants, could be devised for this purpose. Such ratios adopted in the present study and also the more conventional population parameters commonly used in the past are shown in table 5.

Although such ratios from a single census are inappropriate to be directly used in estimating life tables, they are, nevertheless, capable of providing pointers to the reproductive and survival history of the population in the years immediately preceding the census, for about four years in the case of bonnet macaque. However only longitudinal studies over a longer period of time would yield more precise estimation of life table. Parameters discussed below are thus reflective of the current status, healthy or otherwise, of the population.

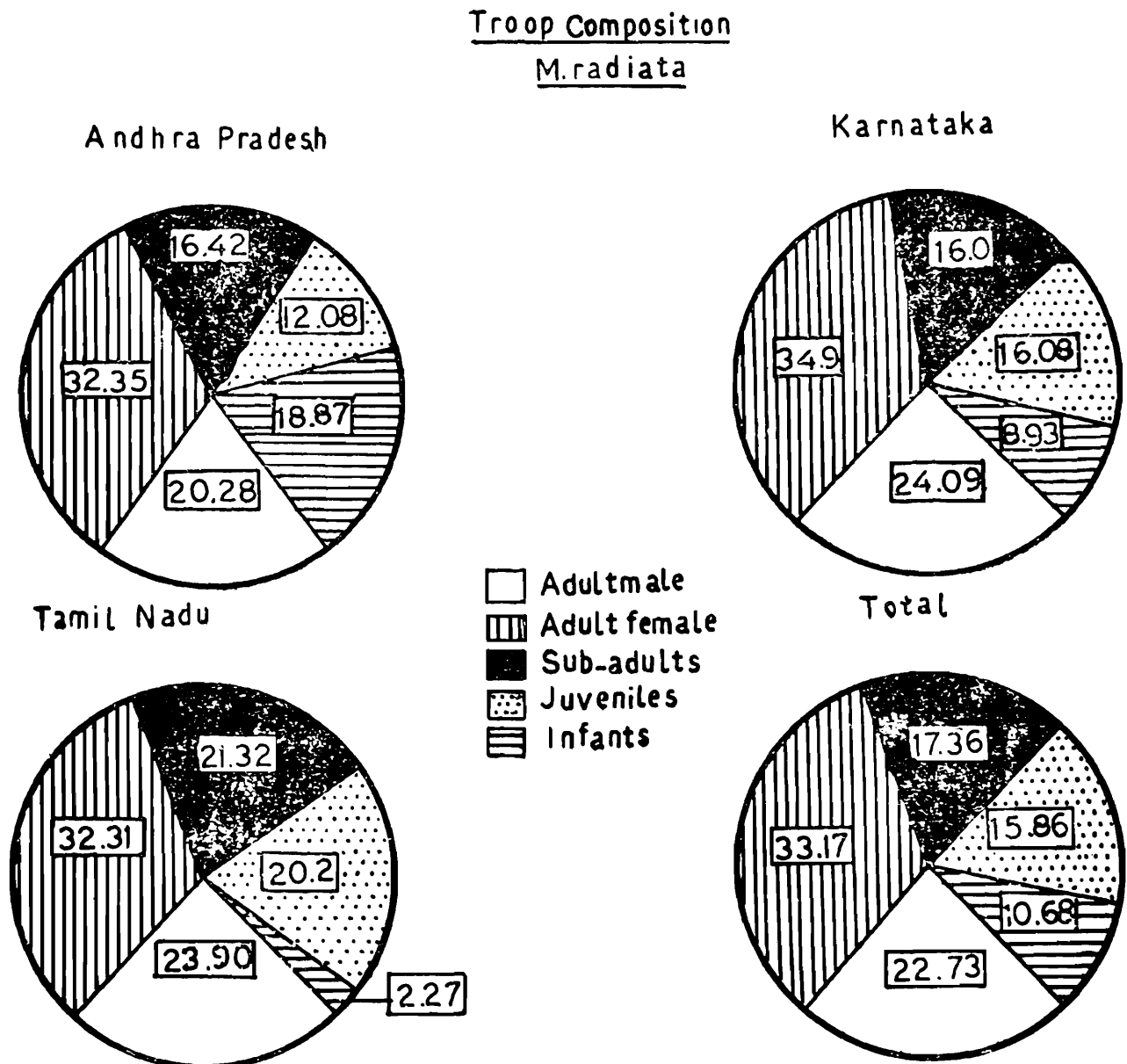


Fig. 5: Relative troop composition of bonnet macaque in different states and totally for the species.

The most basic and direct determinant ratio in this respect is the adult female-infant (F : I) ratio. This is the ratio reflecting the reproductive success or natality rate of the population. Infants for the

present surveys are taken to mean dependent infants. Those young ones found at some distance from the mother, although possibly less than one year old, are not counted as infants, because of the difficulty in classifying juveniles from near-juvenile infants. Mean F : I ratio is obtained as 1 : 0.33. Although this might suggest that only about 33 percent of the adult females reproduced at this time, yet, as the census surveys have been conducted at different times in a year in different states, the above figure represents only the average number of dependent infants that could be found at any given time. In other words, this ratio does not fully represent the natality rate in a troop.

The natality rate is best estimated from census surveys conducted just after the peak birth season, added to that of post peak birth season surveys. There is certainly a season of birth peak which was found to vary in different states. This is obviously due to the considerable climatic differences in regions lying on either sides of the Western Ghats. The Karnataka and Kerala States in the west lying on the west of western ghats are cooler and greener, but Andhra and Tamil Nadu towards the east lying in the rain shadow of the Ghats are easier, hotter, and drier.

In any case, it was noticed that birth peak falls much earlier in the months of Jan-Feb-March in Karnataka, but during May-June-July in Tamil Nadu and Andhra Pradesh (Tamil Nadu data were obtained not in these surveys, but from another programme of eco-ethological studies on bonnets).

We have two surveys undertaken just after the birth peak season, one in Karnataka (during April-May) and the other in Andhra Pradesh during July-August. These surveys given an F : I ratio of 0.33 and 0.58 respectively for Karnataka and Andhra Pradesh, showing considerable difference for the states. Of these the Karnataka figure of 0.33 is not markedly different from that of the whole year for the species as a whole. Average figure of these two surveys is 0.45 which for the present surveys may be taken as the natality rate (45% of adult females giving birth) during the peak birth season.

But a certain percentage of births take place outside the respective regional birth peak seasons, as indicated by the presence of neonates during Nov-December in Karnataka, and during Feb-March-April in Tamil Nadu.

Mean F : I neonates ratio of these non-peak birth season surveys is 1 : 0 : 27 (5.94 : 1.65) suggesting that 27.7 percent of the females give birth during these periods outside the peak or main season. So this

added to the peak-birth season $F : I$ ratio of .45 (45%) would give total $F : I$ ratio of 0.63 or natality rate of 73 percent of adult females.

The next ratio to be considered is the female : immature, or $F : J+I$ ratio. This is an index to the potential (not actual) recruitment rate to the breeding population. This is obtained as 1 : 0 : 78 which means that potentially, reproductive contribution of every female does not eventually produce another member to reproduce (if it does, the ratio should be 1 : 1) : or that the recruitment to the potential breeding population is 81% of the natality rate of 73%. This works out to be 59.13% which is well within satisfactory range. Mortality factors leading upto this is dealt with later. Statewise analysis of the ratio gives the figure for Karnataka as 0.72 and for Tamil Nadu as 0.69 while that of Andhra Pradesh is relatively better, the ratio almost approaching 1 : 1 indicative of near stable conditions.

Adult : Subadult ratio ($M+F : Sa$) is representative of the actual recruitment to the breeding population. Subadults are believed to have a minimum age of three years. In bonnet macaque both sexes attain reproductive maturity at about three years (3 to 4 years, Simonds (1965), $2\frac{1}{2}$ to $3\frac{1}{2}$ years. Rahman & Parthasarathy 1969 ; Laboratory reared bonnets were found to be capable of copulation and ejaculation at an age of $2\frac{1}{2}$ years (Rosenblum and Nadler 1971). Subadult section of the population therefore consists of individuals either already capable of breeding or under initiation of such physiological changes towards breeding. The $M+F : Sa$ ratio works out to be 0.31 subadult for every adult or 31 percent of adults. In other words, slightly less than one third of the adult breeding population annually is being replenished which again is quite satisfactory.

Lowest such replenishment is in Karnataka, 25% highest at 37% in Tamil Nadu, and that of Andhra Pradesh the same as that of the mean for the whole.

A general assessment of the reproductive state of population may be obtained by the evaluation of adult female young ratio ($F : Sa+J+I$) although this ratio cannot indicate the age-phase at which an unstable population is afflicted. The ratio obtained here is 1 : 1.35 for the whole region, and for individual states the figures are 1.15 for Karnataka, 1.46 for Andhra Pradesh and 1.35 for Tamil Nadu, again showing that Andhra Pradesh populations are better placed in this respect. Similarly while the average adult male-female ratio is 1 : 1.5, it is highest in Andhra Pradesh (1.60) and lowest (1.35) in Tamil Nadu.

Approximate values of annual average postnatal mortality upto juvenile stage could be deduced from census data. Prenatal and circum-

natal mortality (mortality immediately succeeding birth) of course will not be reflected in these extensive census surveys. It would be necessary to assume that the birth rate obtained during the year is the same as that prevailed during the preceding two years. It is evident that the total number of juveniles represents the number of infants survived during preceding three years. On the basis of above assumption, the differential between the number of juveniles, and number of potential infants on the basis of birth rate, should show the mortality rate occurring up to juvenile stage of which one-third would be the annual mortality. This may be represented by the following formula :

$$\frac{\frac{1}{3} (2F Rr) - J}{2F Rr} \times 100$$

Where Rr is the reproductive rate (73%). The more direct formula of :

$$\frac{3 (FRr) - (J + I)}{3 (FRr)} \times 100$$

is not adopted because unless the survey has been conducted right after the breeding season the figures for infants will not reflect full natality attained by the population. Mortality rate up to juvenile stage thus works out to be 22.40 percent of the births annually for the preceding three years, i.e., completion of juvenile stage.

Population Ecology :

The general habitat category of rural and urban areas or countryside consists of vast areas which were found to include a number of types that could be characterised as sub-habitats varying in the incidence of monkey populations. The sub-habitats adopted in the present surveys were : (1) Village and cultivated periphery, (2) Roadside (3) Fallow land/hillocks (4) Town, (5) Temple, (including sacred groves) and (6) River Bank. As subhabitats, they are not mutually exclusive, but capable of physical characterisation and consideration as distinctive habitat sectors. Recordings are in the nature of the types of above subhabitats where the troop was located at the time of census. This is to be considered as cross sectional sampling at any one point of time, of the places of residence or ranging of the troop. Figures obtained are given in table 6 below.

Results show that bonnet populations predominantly live as commonsals to human habitations and next as roadside populations. There are two apparent reasons for their second preference of roadside. One is that many roads have avenue trees of banyan (*Ficus*) and tamarind (*Tamarindus*) whose fruits are favoured food items of bonnets. Second is that roadside avenue trees and groves serve as refugia in areas where

Table 6. Incidence of bonnet macaque population in different subhabitats of rural and urban areas (percentage of sighting).

State	Sub-habitats					
	Village & cultivated periphery.	Road side	Fallow 1 and/ hillocks	Town	Temple	River bar
Andhra Pradesh	55.85	17.11	8.10	13.51	4.50	0.90
Karnataka	62.07	24.03	6.40	3.75	4.07	*
Tamil Nadu	62.50	33.93	*	*	3.37	*
Average	60.14	25.02	7.25	8.63	4.04	—
	±4.90	±4.33	±2.60	±2.80	±1.96	—

* Not recorded.

local villagers drive the monkeys away from villages and peripheral cultivations. In many areas, especially in Andhra Pradesh, landscape is bleak, devoid of tree-stands, the avenue trees affording the only relief. About other subhabitats, it is interesting to note that the temples might harbour about 4 percent of the populations.

Differences between village and cultivated periphery, roadside, and fallow land/hillocks, among themselves, as also the difference between first two with other types are statistically significant (Z test of percentage). Interstate differences in this respect are largely nonsignificant, except that roadside populations are more in Tamil Nadu than in Andhra Pradesh, whereas more populations live in towns in Andhra than in towns of Karnataka.

Proximity to water and habitation ;

Proximity was designated on a 3 point scale : Close : less than 200m ; Near : between 200m and one Km ; and Far : more than a Km. away. Results are given in table 7.

Results show that 97 percent of the bonnet populations live in close and near proximity to water source, and only a very small number live anywhere of from it. Similarly only 6.93 percent of the population could be found living far from human habitation, the rest living around villages and settlements in close and near proximity. As regards interstate variation in these aspects, it appears that close proximity to water is significantly different from state to state.

Great majority of the Tamil Nadu population live in very close

Table 7. Proximity of bonnet monkey populations to presence of water sources and human habitations.

State	Water%			%habitat		
	Close	Near	Far	Close	Near	Far
Andhra Pradesh	60.41	35.41	4.16	63.41	26.82	9.75
Karnataka	38.15	56.83	2.27	49.50	38.72	11.04
Tamil Nadu	87.5	12.50	—	71.43	28.5	—
Average	62.02	34.90	2.14	61.44	31.34	6.93
	± 6.06	±5.95	±1.80	±6.08	±5.79	±3.17

proximity to water ; so also that of Andhra Pradesh, but to a lesser extent. But Karnataka population for the large part is content to have the water sources nearby.

Similarly, in proximity to human habitation, Karnataka population shows significant difference in close proximity from that of Tamil Nadu, in that the former lives far less in close proximity to water. Tamil Nadu population, in fact, is completely dependent on close and near presence of water and habitation, and none was found far away from these. Data here suggest that Karnataka population is different from those of other two states in that the former lives somewhat more dispersed in a wider circle peripheral to both water sources and villages.

Trees occupied :

Bonnet populations were most frequently met with either on *Tamarindus* or *Ficus* species. Other trees were involved much less, and varied widely in species. As such, these were grouped together. Results shown in the table below indicate that Tamarind species (*Tamarindus indicus*) was most preferred, followed by *Ficus* species (*Ficus bengalensis* and *Ficus religiosa*), both of which are preferred food trees for the bonnets.

Table 8. Preferred occupation trees and rates of occupation for bonnet macaque populations.

State	Tamarind	Ficus	Others
	%	%	%
Andhra Pradesh	62.74	15.68	21.56
Karnataka	24.11	48.47	16.17
Tamil Nadu	35.78	23.15	41.50
Average	40.87	29.10	26.26
	± 5.75	± 5.31	± 5.15

Interstate differences are significant with regard to both the species (Z test). Andhra state differs in its high rate of Tamarind tree-usage by bonnets compared to Karnataka and Tamil Nadu, whereas, Karnataka population shows significantly higher rate of *Ficus* occupation compared to other two states. However it is to be noted that Andhra Pradesh survey was conducted during the tamarind season of July-August and therefore might be biased. It is also to be borne in mind that the number of *Ficus* stands are much less than that of Tamarind, latter being much more common and economically exploited.

Troop dispersion :

Troop dispersion diameter was measured as the linear distance from the nearest to the farthest member of the troop. This was found to be very considerably Diameter distance measured for 192 troops gave a mean of 41 ± 33 metres (range of various survey averages 33 to 48 m). Interstate and intersurvey differences were not significant. Measurements were made irrespective of whether troops were on the trees or on ground.

Correlates of larger troop size :

(a) *Proportion*

Mean troop size of bonnet being 17.73 individuals, the large troop size was taken as 25 or more members. An analysis of such larger troops statewise and in total gave following results (Table 9). Interstate differences are not significant. This shows that troops of 25 or more members form only 20 percent of the populations.

Table 9. Percentage of large sized troops (+ 25 numbers in Bonnet Macaque.

State	Total No. of troops	Large troops No.	Percentage,
Andhra Pradesh	44	10	22.72 ± 6.31
Karnataka	217	47	21.65 ± 2.80
Tamil Nadu	41	5	18.20 ± 5.11
Totally for species	302	62	20.52 ± 2.32

The larger troops were mainly met within the subhabitats of village and cultivated periphery (56%), roadside (39%) and temples (3%). These preferential occurrences are not significant from the general pattern of subhabitat preference exhibited by the species as a whole (Table 11). However it is notable that only one troop was recorded within fallow land/hillocks category. This shows that such uncultivated semiwild habitat does not support any large troop size, probably owing to the poor carrying capacity of this type of land, which sometimes includes very barren areas.

Larger troops were mainly met with on *Ficus* and *Tamarindus* in that order. 72% of the larger troops were met with on *Ficus* as against 23% on *Tamarindus*. Although interstate differences between Andhra Pradesh and Karnataka relating to *Ficus* occupancy are significant, this is not real, owing to the bias of the census surveys in Andhra Pradesh falling in the Tamarind fruit season. *Ficus* owing to its larger standspread and a near continuous phenological succession of fruiting over its geographical range (fruiting *Ficus* could be met with at all times in various places) is ideal for larger bonnet troops food, protection and rest.

The average troop dispersion diameter of the larger troops was found to be 52m which was not significantly different from the overall mean (41 + 33). There was also no interstate significance.

CENSUS SURVEYS IN KERALA STATE

Surveys in Kerala State had to be done on a different basis. Unlike other states covered, the human settlement pattern in the countryside of Kerala presents a totally different picture in that habitation is fairly continuous and not in clusters of villages separated by vast tracts of peripheral fields. Of all the states, this is the most densely human populated. With the consequent pressure, acute attrition of the monkey populations has been in progress here for a long time, and free ranging monkey population in the countryside has practically disappeared. Only exceptions are the sacred groves, few temples, and some remnant patches of secondary forests scattered here and there, in most of which also they are fast disappearing. Monkeys are however more commonly encountered in the areas bordering the Western Ghats. They are more of forest fringe groups which visit and raid the cultivations during cropping seasons.

Population being small and in highly skewed distribution, sampling surveys as in the case of other three states would not have yielded

satisfactory results. Therefore it was sought to have near complete questionnaire returns by which almost a reel count of village panchayats where monkeys are present could be obtained. As the number of panchayats in the state as well as those containing monkey populations were small, this method was feasible. Nearly 89% questionnaire returns was obtained and those from where monkeys were reported were visited with the exception of only northern most Cannanore district which could be covered only partially. A total of 158 panchayats were reported to have monkey populations as already shown.

However the groups of connects which was the only species found in most of the areas, were having characteristics of forest and forest fringe troops. Hanuman langurs were actually met with only in very few places in the countryside where they did not lend themselves for any counting. The bonnet troops that could be reliably counted were mainly sacred groves groups or of forest fringe. As such, population parameters of these groups, a limited sample, are somewhat different although the major differences are not statistically significant. Below is given the group composition of 8 groups reliably counted.

Table 10 : Group composition of Bonnet macaque in Kerala State.

Locality	M	F	Sa	Ju	In	Total
Pullampara	12	5	12	5	5	39
Nilamour	2	3	1	2	—	8
Sastnankota	5	9	8	9	—	31
Veliyam	2	5	1	—	—	8
Venmani	9	12	8	10	2	41
Budhanur	4	7	9	6	5	31
	1	7	1	4	2	15
Ambalapurzha	1	1	1	—	—	3 (Remnant) troop)
Total	36	49	41	46	14	176
Mean	4.50	6.12	5.12	4.50	1.75	22
Percentage	20.45	27.84	23.29	20.45	7.93	

Surveys were conducted mostly before the birth season and infant section is therefore not properly represented. Probability of including some-near yearlings as juveniles cannot be ruled out. Socioeconomic sex and age ratio of this small sample are given below.

M : F	F+M	F : Sa	F : J	F : I	F : J+I
	Sa + J				
	+ I				
1.36	1.07	0.83	0.73	0.28	1.02

Most of the other ratios compare with those obtained from other states. This small sample differs from others mainly in the higher average group size, but then as mentioned earlier this of a population confined to highly localized, selective pockets and not of one ranging more commonly throughout the countryside.

ROADSIDE TROOPS

Earlier census surveys of non-human primates in India mainly of rhesus macaque, have used a roadside survey of monkey troops encountered along the major roads in several states of north India. Although the present census surveys have been based on entirely different methodology which more closely correspond to human demographic methods, using the panchayats as the basic units, the extensive travels under the programme have been utilized for recording the roadside troops also.

As already mentioned the different types of roads were divided into four main categories shown in table 10. This was necessary as environmental configurations on either side differed considerably. A total of about 27,800 kms. were travelled in all the four states, excluding double tracking and trips not exclusively for census surveys (Grand total 52,000 km, Table 10). Of these about 4,000 km. travelled in Kerala state are excluded as it is rare to meet with roadside troops of monkeys in that state. Results of 23793 km. of census survey travels through the length and breadth of the three other states, covering even interior panchayats are given in table 11 below.

Table 11 : Incidence of roadside troops of monkeys along four types of roads in Andhra, Karnataka and Tamil Nadu States.

Routes	Troops censused		
	Distance covered km	Bonnet	Kms./troop (km)
ANDHRA PRADESH			
National Highway	3709	5	742
State Highway	1598	5	320
District Road,	2099	1	—
Village Road	391	5	78
Total	7797	16	487

Routes	Distance covered km.	Troops censused	
		Bonnet	Kms./troop (km)
Karnataka			
National Highway	2815	101	28
State Highway	2444	17	144
District Road	4557	103	44
Village Road	2409	44	55
Total	12225	265	46
TAMIL NADU			
National Highway	288	1	—
State Highway	711	4	178
District Road	2419	24	101
Village Road	353	4	88
Total	3771	33	114
For species on above states together			
3 States			
National Highway	6812	107	64
State Highway	4753	26	183
District Road	9075	108	71
Village Road	3153	53	59
Grand Total	23793	314	76

Results obtained, so far the most extensive, show that, while a bonnet troop could be met with every 76 kms. of road travel through the four main types of roads, the incidence of bonnet troops was maximum along village roads where the rate was 59 km. only for every troop. Next comes the national highways with one troop every 64 km. followed by district road. Inter-state differences are considerable in this respect, the incidence of roadside troops being the highest in Karnataka where a troop could be met with every 46 km. of travelling through different types of roads, but unlike overall figures, it is seen that among the different types of roads, the incidence is maximum

along national highways (every 28 km), followed by district roads (44 km), village roads (55 km) respectively. Least incidence of bonnets is in Andhra Pradesh where troops could be met with only every 487 km., but incidence in the village roads is markedly different (78 km). In Tamil Nadu also which is intermediate to Karnataka and Andhra Pradesh in Troop incidence, village roads lead in this respect (88 km).

These results on bonnets may be compared with the road side surveys carried out by Southwick *et al.* (1961, 1966) and Dolhinow and Lindourg (1980) for rhesus in northern Indian states given in the following table No. 12.

COMPARISON WITH OTHER ROADSIDE SURVEYS

Table 12 : Incidence of rhesus compared to bonnets along rural roadside.

Source areas	travelled distance (km)	Troop per kms. in rural areas	Species
Southwick & Siddiqui (1961 & 1966)	7,427	18.29	Rhesus
	5,773	25.10	
Dolhino & Lindburg : (1980)			Rhesus
Uttarpradesh	5,509	25.3	
Punjab	1,882	89.6	
Himachal Pradesh	539	179.7	
Total/Mean	7,930	32.8	
Present Surveys :			Bonnet
Andhra Pradash	7,797	497.0	
Karnataka State	12,225	46	
Tamil Nadu	3,771	114	
For the three states together	23,793	76	7

Data quoted from reports other than present surveys, both relate to the years 1964-1965. Although compared to the incidence of rhesus monkey in north India, that of bonnets in the south appears to be much less, it is to be noted that rhesus surveys were conducted more than two decades ago. A recent report by Mukherjee and Mukherjee

(1972) produces a density estimate of 008 – 05/km² for rhesus, strikingly in contrast to density estimates of 5–57/km² of earlier workers. Although an evaluation of census technique employed might be advisable when difference of such order of magnitude are involved, yet, this might be a pointer to the vastly changed population status or roadside populations in Uttarpradesh, mainly brought about by trappings for trade that have been going on for several years.

PRIMATES IN BIO MEDICAL RESEARCH

More than 17 species of honnuman primates are used as models in various kinds of biomedical researches all over the world. Of these at least 10 are oldworld species. The various research areas with specific research topics where rhesus and bonnet macaques are used mainly in USA in 1973 for example are given in table below :

Table 13 : Research areas and topics where rhesus and other macaques are mainly used.

Research area	Research topica	Rhesus Nos. used	Bonnet Nos. used
Pharmacology, toxicology	Toxicology Pharmacology Vaccine production testing ; tissue culture. Blood studies Safty testing.		
Disease, infections	Virus Malaria, tropical diseases Parasitology Hepatitis	1844	
Diseases, other	Cardiovascular, atherosclerosis Musculo-skeletal- injury Respiratory- Pulmonary, T. B. Endocrine-diabetes Nervous-epilepsy	1548	

Research area	Research topica	Rhesus Nos. used	Bonnet Nos. used
	multiple sclerosis Sensory-glaucomiurcites Neoplasma, carcino genesis, immunology pathology, pediatics dermatology		
Neurophysiology	Neurophysiology Central nervous system, neuropharmacology Neurosurgery Neuropsychology, Implant studies.	2084	
	Ophthalmology Otolaryngology, vestbular, auditory.	1556	
Reproductive Physiology	Obstestrics- gynecology Reproductive endocrinology, birth control Featal development birth defects teratology Perinatal studies	1328	9
Behaviour	unspecified social	952	28
Psychobiology	Addiction studies Psychopharmacology Learning Psychology	744	17
Experimental surgery		439	

Research area	Research topica	Rhesus Nos. used	Bonnet Nos. used
Psysiology	Metabolism, nutrition physiology, anatomy Endocrinology Urology	358	
Dental		341	
Environmental	Radiobiology, heavy metal toxicity, hyperbaric medicine		
Other	Unspecified biology, microbiology	1230	13
Total		24,587	67
Percent		60	—
From Muckennirn (1975) (adapted)			

This shows that 60 percent of the primate in biomedical research in USA involved rhesus macaque and the major research areas utilizing the species are pharmacology and toxicology, followed by neurophysiology and skin diseases, infectious diseases and others. Rhesus together with marmosets, squirrel monkeys, night monkeys, vervets, longtailed macaques and baboons constitute 96 per cent of use as models. The largest numbers of rhesus and vervets are used in polio vaccine production and testing.

As regards bonnet macaques their usage is still only nominal mainly in para medical or biological fields such as behaviour and allied psychobiology, general, biology, microbiology and reproductive physiology. In India they are being increasingly used in the latter field, particularly in contraceptive research. Bonnet macaque is said to be specially suitable for researches with gonadotropic hormones. Male bonnet macaque which does not show any seasonality in sperm production offers distinct advantages compared to rhesus monkey, in contraceptive studies (Murty *et. al.*, 1980).

REPORTED TREND IN POPULATION CHANGE

It was queried in the questionnaire, as to the popular impression or experience, whether the monkey populations are increasing or

decreasing. The reported answers to this query might represent a populist assessment in the light of past experience over several years. As it is a subjective assessment not based on actual counts, this evaluation could also be coloured by more acute incidence of monkey populations that have developed more daring. But considering the population structure and reproductive vigour shown by both the macaque populations, the reported majority view of increase could also be substantiated. Summary of the figures are given below, omitting cases reported as uncertain :

Table 14 : Reported trend of populations change.

State	Reported trend (% of questionnaire reports)	
	Increase	Decrease
Andhra Pradesh	70	—
Karnataka State	72	25
Tamil Nadu	56	19
Mean	66	22

INTERACTION WITH MAN : RAIDS BY MONKEYS

Some information on the extent of raids by monkeys on crops and houses were sought to be collected through the questionnaires. A summary of the results are given below :

Table 15 : Raids by monkeys

State	Percentage of reported raids	
	On Crops	On houses
Andhra Pradesh	88	42
Karnataka state	74	26
Tamil Nadu	63	37
Mean	75	35

Raids by monkeys appear to be more in Andhra Pradesh than in other states and least in Tamil Nadu. 88 percent of the answers received from panchayats with monkeys (any of of the three species) reported raids on the crops by the monkeys. Compared to raids on crops that on houses were less mostly less than half. This pattern is more or less common to all three states. At any rate the results show that in most areas interaction with monkey populations was of increasing impact. It may also be noted that interstate differences closely follow those of

reported raids. Absence of any extensive trapping for trade in southern India, the pronounced disinclination to kill the monkeys on religious considerations, and the healthy socio-economic ratios displayed by the population, might all suggest that the increase of monkey population felt by the people, might be real.

DISCUSSION

Mean troop size for the presently estimated population of 1,70,000 bonnet macaque equivalent of 9,500 troops in the country-side is obtained in the present surveys as 17.73 ± 1.40 (N : 308 troops). Roonwal and Mohnot (1977) report that group sizes vary from 7 to 76 individuals as given by various authors. Mean for 12 troops consisting of 9 troops of cultivated areas and 3 of forests, studied by Sugiyama (1972) near Dharwar in Karnataka, is 30 members, the mean for the 9 cultivated field troops works out to be 28.77 and those of forest 33.66, suggesting larger size for forest troops (however, not statistically significant). But troops studied by Sugiyama are all forest fringe troops and not really rural or urban area troops. The roadside troops (6) studied by Simonds (1974) averaged (28.9), compared to his two forest troops which had 29 and 7 members. Rahman (1975) reports troops size ranging from 10-50. Rahman and Parthasarathy (1967) report mean troop size of 21.1 for 14 urban troops in Bangalore and its environs.

The present study shows that larger troops of more than 25 members form only 20.52 ± 2.32 per cent of the rural and urban populations. While Andhra Pradesh and Karnataka states which contain majority of the populations, agree more or less in this respect, larger troops in T. Nadu form only 12.20 ± 5.11 percent of the populations.

The adult male : female ratio in the present survey is obtained as 1 : 1.45 (range 1.35-1.59). The ratio obtained by Sugiyama (*op cit*) works out to be 1 : 1.12 (and not 0.83 as given by him which is the reverse i.e., female : male ratio. Therefore the statement by Roonwal and Mohnot (*op cit*) based on above mistaken ratio that there are more adult males than females in the bonnet macaque and it has the lowest male : female ratio among macaques is wrong). Simond's (1965) three study troops give a male : female ratio of 1 : 2.07 but he also reports a ratio of 1 : 0.85 based on 4 troops. Carpenter (1964) suggests that a high proportion of one-male troops, and high ratio of females per male might be characteristic of a recent dramatic decrease in population. The ratio of 1 : 1.45 obtained here cannot be considered as high nor is the

proportion of troops with only one male in any way significant. However, results obtained by Southwick and Siddiqi (1977) in a protected Rhesus macaque troop, where the adult sex ratio (M : F) increased from 1.8 to 3.8 (mean 2.67) over 15 years along with a 134% increase of troop size, shows that a higher ratio of females could infact mean a flourishing population. Other protected rhesus troops of temples and forests are also said to have similar adult sex ratio. Present surveys have also shown a high sex ratio of 1 : 3.03 for Rhesus macaque (Kurup 1981). So compared to Rhesus, bonnet macaque populations show a rather low adult sex ratio, although the ratio (1.45) obtained here is higher than those shown by the very limited studies done previously.

Natality rate as indicated by the female : infant (F : I) ratio in the present surveys is obtained as 73 percent. Sugiyama's (1972) 12 troops at Dharwar gave a natality rate of only 50 percent (1 : 0.5). Simond's figures give a rate of 63 per cent for four troops. Sugiyama's and Simond's troops for the most, excepting one or two, are either forest or forest fringe troops and if this factor is taken into consideration the countryside troops appear to have better natality. For example, if the three forest troops of Sugiyama are excluded natality rate rises to 56 percent. Natality rate of 73% obtained in the present surveys may be compared to colony breeding rate of 71% obtained at Bombay (Munshi 1980) and a conception rate of 85% reported at Bangalore (Srinath 1980). At Bangalore apparently 20-25% females were found having anovulatory cycles during the fertile period. If natality rates of single troops observed through an entire birth season reported by various earlier workers unlike in a census are taken into consideration, then a mean of 88% for eight such troops is obtained. (Fooden, 1981).

The adult : young ratio here is shown to be 0.80. Sugiyama's figures shown a far lesser ratio of only 0.70 ; so do Simond's four troops which show even lesser a ratio of 0.55. How far the trapping and or killing of subadults are responsible for this is not known. While male : female ratio in the present surveys projects a reasonably good proportion of 1.45, this high ratio is achieved at the expense of low average of the adult population and particularly that of adult males (M : 4.01 and F : 5.82 compared to 8 and 9.7 respectively in the Dharwar troops). Female : Male ratio in the present surveys is only 0.6 whereas it is 0.82 in Dharwar troops. Here again trapping or killing of adults might be involved.

However a negative ratio of higher adult population compared to that of young is not indicative of an increasing population. However, since the recruitment to the breeding population and replenishment of

the latter are already shown to be satisfactory, the situation may be viewed more as an artifact of trapping of subadults.

Cumulative evidences from the above analysis of the demographic parameters of the countryside populations of bonnet macaque point to the inescapable conclusion that these populations are an increasing nature showing strong reproductive vigour and sound growth factors. It must be admitted that this result was rather unexpected. To the extent comparisons dealt with here indicate, it was also unanticipated that, countryside populations have more positive and prolific demographic parameters than the forest populations.

If anything these results show that bonnet macaque populations are now so well adapted to a commensal life in the countryside, that this has become their optimum habitat. They have indeed come a long way out of the forests. Two factors may be considered here as conducive to this development. Peninsular Indian block is a peneplain of multi-epochal weathering. Most of it had come to be occupied by a predominantly xerophytic vegetation of thorn savanna and scrub interspersed with areas of deciduous forests. In fact most of the vegetation of Indian plains even of Indo-gangetic plains, is of a relict xeromorphic type which once extended more broadly (Mani 1975). Bonnet macaques originally evolved in this type of habitat, relics of which can now be seen along the eastern coast (thorn savanna scrub) and in the dry deciduous forest patches of the Deccan. These types of forests have a lower productivity, and carrying capacity in terms of biomass, and the animal populations in these habitats, whether autochthonous or secondarily adapted to, have to be ecologically, biologically and socially attuned to a lower level of habitat sustainability. Reproductive vigour is thus moderated.

Compared to these dry deciduous thorn forest habitat, the human environmental habitat in the countryside with its cultivations, consumable refuse, ubiquitous water sources, and common enough stands of fruit and shelter trees like *Ficus* and *Tamarindus* and in many places patches of forests also around, formed an optimum habitat where the reproductive faculties could expand ; and they apparently did.

The second factor is the religious protection offered by the traditional and conservative villagers. The value of such community protection to the monkeys is well brought out by Southwick and Siddiqi (1977) illustrating the extremely favourable growth response by a protected troop, as mentioned earlier. In all the states and particularly in Karnataka even the most wrathful retaliation to infliction of often severe losses due to monkey deprecations, stops short of physical liquidation. Last resort is only trapping and deporting to considerable

distances, (unfortunately, this is a tow-way game which the villagers sometimes ruefully learn). Unlike in the case of rhesus, commercial trafficking in bonnets had so far been only minimal but the potential for greater usage of this species in biomedical research is beginning to be realised. (Srinath, 1980, Murti *et al.*, 1980, Prasad, 1980).

In conclusion, the various socio-economic ratios dealt with, particularly, factors such as natality or reproductive success rate of 73%, the recruitment to the breeding population to the extent of 13 of adult population annually, and only 22.40% mortality upto the completion of juvenile stage, all indicate favourable growth factors and a flourishing population. The threat to the country populations of bonnet macaque amounting to 1,70,000 individuals equivalent of 9,500 troops occurring in the four states of southern India as estimated in the present census is therefore not biological, but ecological and environmental, mainly through habitat modification and physical decimation.

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A P P E N D I X I

Localities where bonnet macaque troops were located

in Direct Surveys

Andhra Pradesh

District	Block	Panchayats	
CHITTOOR	Chandragiri	1. Tirupathi (Town)	
		2. Karakambadi	
		3. Mamandur	
		4. Renigunda	
		5. Chandragiri	
		6. Perumalepalli	
		7. Margapuram	
	Madanapalli	1. Vempalli	
		2. Ponnuttipatanam	
		3. Thettu	
		4. Kottavuru	
CUDDAPPA	Lakkireddipalli	5. Bavyagaripalli	
		6. Ghattu	
CUDDAPPA	Jammalamadugu	7. Gummasamudra	
		8. BKooha Kotta	
ANANTAPUR	Penukonda	9. Thommanamkotta	
		10. Gollapalli	
	CUDDAPPA	Lakkireddipalli	11. Angulu
			1. Gopugudupalli
	CUDDAPPA	Lakkireddipalli	2. Aydukkur
			1. Jammalamadugu
	ANANTAPUR	Penukonda	2. Bandlapalli
			3. Annamapalli
			4. Venkatarreddipalli
			5. Penukonda town
6. T. K. Patanam			
7. Roddam			
8. Settipalli			
Uravakonda			1. Permabobilam
	2. Uravakonda town		
Guntakal	Guntakal	1. Uravakonda road	
		2. Guntakkal town	

District	Block	Panchayats
KURNOOL	Gooty	1. Gooty town 2. Bethapalli
	Adoni	1. Pandavagallu 2. Peddakkadalu 3. Chinnathummalam
	Nandyal	1. Thimmapuram 2. Kathapalli 3. Akodar 4. Panappalli 5. Bandiatmakur
MAHABUBNAGAR	Atmakur	1. Atmakur town
	Achampet	1. Umamaheswaram
KRISHNA	Mahabubnagar	1. Yammikonda
	Vijayawada	1. Vijayavada town
PRAKASAM	Thalur	1. Darsi
	Podile	1. Podile
	Ulavapadu	1. Guntur-Ongole Rd.
NELLORE	Kavali	1. Kavali town 2. Sarvalayapalem
	Venkatachalam	1. Venkatachalam 2. Ramdassathram 3. Gurvindapudi 4. Manubolu
	Gudur	1. Reddisatram 2. Nallapalli 3. Sulurpet 4. Tada

Karnataka state

NORTH KANARA	Sirsi	1. Isloor 2. Banarasi 3. Begale 4. Kanagod 5. Kulaghatte 6. Kasankara
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District	Block	Panchayats
SHIMOGA	Honali	1. Saulaye
		2. Chenkaly
		3. Sirvane
		4. Saulanga
		5. Mochinally
	Tarikere	1. Tasikere
		2. Behdaballi
		3. Kudlur
		4. Lingidahalli
		5. Udava
		6. Dylapura
		7. Halsoor
		8. Somnapur
		9. Lakvalli
N. R. Pura	1. Belgae	
	2. Kadahan balus	
Thirthahally	1. Guddakoppa	
	2. Arulapur	
	3. Melegae	
	4. Devangi	
	5. Thirthahally	
	6. Kyananthahalli	
	7. Kallamaru	
BIJAPUR	Mudhol	1. Mudhol
		2. Lokapur
		3. Mahalingapur
BELGAUM	Bailkongal	1. M. K. Hubli
DHARWAR	Kalgatagi	1. Kalgatagi
		2. M, Honiballi
		3. Dhonwadi
		4. Devalingikoppa
		5. Muttagi
		6. Devikoppa
SOUTH KANARA	Udipi	1. Hirkada
		2. Badagahalli
		3. Attuady
		4. Aroor
		5. Cherkady

District	Block	Panchayats
MYSORE	Sullai	6. Hosur
		7. Perdoor
		8. Alwaoor
		1. Sonageri
		2. Aivernad
		3. Kalnadka
		4. Yemoor
		5. Panja
		6. Balpa
	7. Guthikasu	
	8. Devaschar	
	9. Doduthoth	
	Meggadadevankote	1. Mattakarai
		2. Hirigge
		3. Kolugala
		4. Hampapura
		5. G. U. Sargur
		6. Halanaballi
7. Ediala		
8. Hadanur		
9. Begur		
10. Koskote		
11. Kallampal		
12. Chamalapur		
Hunsur	1. Mukkanaballi	
	2. Bannikuppa	
	3. Auganaballi	
	4. Kudini Mudanaballi	
	5. Bellenhalli	
	6. Husur	
	7. Harve	
	8. Kottayammalvadi	
	9. Hablakuppe	
	10. Hunsur	
	11. Kambalapura	
Berjapatna	1. Berebosaballi	
	2. Bellapura	
	3. Barse	

District	Block	Panchayats
		4. Kunsukuppe
		5. Chevathi
		6. Mushur
		7. Hunsuvadi
		8. Thillenaballi
		9. Chapradaballi
		10. Chickanareballi
		11. Koppa
		12. Doddakaparavalli
		13. Kanagol
		14. Goraballi
	Krishnaraja Nagar	1. Betraballi
		2. Kuppe
		3. Chunchanakatte
		4. Beechanaballi
	Mysore	1. Hosur
		2. Chithalingapura
		3. Mysore (City & surroundings chamundi hill)
		4. Sreerampur
		5. Udupur
		6. Malpalli
		7. Thalluru
		8. Mundakalli
		9. Devalapura
		10. 9 km off Mysore on T. Narsipur Road
		11. Buthnalli
		12. Vajamangala
		13. Varcod
		14. Megalapur
		15. Siddaramanhuddi
		16. Kuppegala
		17. Duddugane
		18. Megalapura
		19. Varuna
		20. Belavadi
		21. Gopalpura
		22. Jeyapura

District	Block	Panchayat
	Narsipur	1. Hereyur 2. Mathapura 3. Hemige 4. Sosalae 5. Chiddaraballi 6. Honolahalli 7. Kiregesur 8. Bairapura 9. Gangeswar 10. Yadadone 11. Keyayanahuddi 12. Thumla 13. Kuppege 14. Hittuhalli 15. Rangasamudra 16. Kodagalli 17. T. Bettahalli 18. Thalakadu 19. Vijayapura 20. Kodahalli 21. Bannur 22. Betnahalli 23. Somanathapur 24. (Anawadi) Pulikot 25. Sangur 26. Koresalu 27. T. Narsipur 28. Doddabaghe 29. Kothagala 30. Mugu 31. Chilkod 32. Hunthur
	Kollegal	1. Chinganallur 2. Kongaraballi 3. Hannur 4. Ajipura 5. Ramapura 6. Yellabada 7. Uthunur

District	Block	Panchayat
		8. Bandahalli
		9. Chinjahalli
		10. Manuhalli
		11. Lokanahalli
		12. Kollegal
		13. Danagere
		14. Kannur
		15. Chemalingaballi
		16. Satyagala
		17. Gandepala
		18. Sidhayanpura
		19. Muthunalli
		20. Doddindovddi
		21. Chinganallur
		22. Palya
		23. Gundegala
		24. Horla
		25. Lakhanaballi
		26. Therampatti
		27. Uthampalli
	Yelandur	1. Mamballi
		2. Mathur
		3. Eriyur
		4. Yerganopalli
		5. Ganiganur
		6. Gaudahalli
		7. Agarar
		8. Shiraballi
	Moulalug	9. Moulalug
		10. Gowrigonnoor
	Chamrajnagar	1. Chamrajnagar
		2. Kodimalai
		3. Jyothigsudapoor
		4. Attur
		5. Santhamaraballi
		6. Kavathuvadi
		7. Hosaballi
		8. Jannur
		9. Ummathur

District	Block	Panchayat
		10. Kutheru
		11. Sunthenaraballi
		12. Somanathapet
		13. Haradanalli
		14. Venkatachatra
		15. Kankanshettpura
		16. Amachivadi
		17. Arkalawadi
		18. Yenaballi
		19. Yanakumba
		20. Kothalavadi
		21. Uganathabuddi
		22. Hudigola
		23. Sivapura
		24. Marriale
		25. Muthege
		26. Harue
		27. Nanjadevanpura
		28. Mallagapura
		29. Nallur
	Nanjangud	1. Sargur
		2. Kuperavalli
		3. Thayur
		4. Chinnapalli
		5. Thakidoor
		6. Debur
		7. Heggadaballi
		8. Kaneyanur
		9. Nethithal pura
		10. Ibjala
		11. Kuri hundi
		12. Mathapura
		13. Harrah
		14. Amlale
		15. Holagere
		16. Harthala
		17. Nanjangud
		18. Hothana

District	Block	Panchayat
BANGALORE	Doddaballapur	1. Ardeshalli
		2. Sivapura
		3. Thimmasandra
		4. Rajakatta
		5. Melekote
		6. Gundenahalli
		7. Thumpkera
		8. Arnamalli
		9. Kadanur
		10. Chennadevei Agraharam
		11. Mallahalli
		12. Kodehalli
		13. Ramadevanhalli
		14. Halenahalli
		15. Kannamangala
		16. Hannavara
		17. Putenagrahara
		18. Doddehejjadi
		19. Chickbelevangala
		20. Dodbedavengla
		21. Chickhejjadi
		22. Kodegahalli
		23. Maralenahalli
		24. Chelenehalli
		25. Tippur
		26. Kadalpanahalli
		27. Hadakvala
		28. Sakkaregollahalli
		29. Kodegaehalli
		30. Hanabae
		31. Huskur
		32. Hadripura
		33. Doddaballapur
		34. Basetihalli
		35. Hulkonte
TUMKUR	Wellamangala	1. Hoblapura
	Gubbi	1. Laospet
		2. Manchalabegge

District	Block	Panchayat
		3. C. S. Pura
		4. Mavenahalli
		5. Mattighatta
		6. Nittur
		7. Bandihalli
		8. Belavatta
		9. Byedegere
		10. Pendenahalli
		11. Thyagattur
		12. Azhalakotta
		13. Agalavade
		14. Bidave
	Tumkur	1. Mallasandra
	Madhugiri	1. Gudirappachinakvajsa
		2. Siddapura
		3. Doddaveeragonahalli
		4. Sirutharagal
		5. Badevanahalli
		6. Chandragere
		7. Dodderi
		8. Vaderahalli
		9. Chinnenahalli
		10. Neerkal
		11. Medigeri
		12. Hanumanthapura
		13. Tadi
		14. D. Yelkur
		15. Brahmasamundra
		16. Settihalli
		17. Kedakathala
		18. Doddahosahalli
		19. Puravara
		20. Dodbalar
		21. Godiganhalli
		22. Kadagattur
CHITRADURGA	Hiriyur	1. Babbur
		2. Metekurke
		3. Murdehalli

District	Block	Panchayat
		4. Pallavanahalli
		5. Aimangala
		6. Advala
		7. Javagondanahalli
		8. Kotanetkanehalli
		9. Pitlalay
		10. Yelenadu
		11. Byaderahalli
	Jagalur	1. Musthur
		2. Jagalur
		3. Hoskere
		4. Diddigi
		5. Pollahate
		6. Bilichode
BELLARY	Hadahalli	1. Tiligi
		2. Uttangi
		3. Soggi
		4. Hirehadahalli
		5. Mylar
		6. Bearabbi
		7. Hirekulichi
		8. Masalvada
	Bellary	1. Bellary (town)
		2. Veniveerapura
		3. Kuditini
		4. Ganikkalal
		5. Emirgannor
		6. Veerapura
		7. Sanganakkal
	Hospet	1. Hospet (town)
RAICHUR	Yelburga	1. Kukkunur
	Lingasugur	1. Gurgunta
		2. Mudugal

Tamil Nadu

District	Block	Panchayat
NORTH ARCOT	Arni	1. Arnitown
	Thiruvannamalai	1. Thiruvannamalai town
		2. Kilpannathur
		3. Vettavalam
		4. Kizvelai
	Vikravandi	1. V. Salai
	Kolianur	1. Penchamadevi
	Pannuruthi	1. Panikkuppam
	Bhuvanagiri	1. Sethiathope
	Kaliyamalai	1. Kondakkumaram
	Chidambaram	1. Chidambaram town (temple)
		Parankipettai
	2. Deriyakummedi	
	Kurinjapadi	1. Adivarakanalloor
2. Agaram		
3. Alapakkam		
4. Cherakkuppam		
Neyveli	1. Neyveli town	
Bhuvanagiri	1. Eambur	
THIRUCHIR- APPALLY	Ariyalur	1. Periyagalur
		2. Valangudi
		3. Reddipalayam
		4. Puduppalayam
		5. Melakkaruppur
		6. Thavuthaikulam
		7. Ariyaloor
		8. Kallankurichi
		9. Periyagalur
	Thirumanur	1. Kilpallur
2. Vizhuppuramkurichi		
3. Azhakiamaavalam		
4. Sathamangalam		
5. Melpazhur		

District	Block	Panchayat
	Sendurai	1. Vanjanapuram 2. Kulumur 3. Alathiyur
	Andanallur	1. Pettawaithalai 2. Allur
	Thiruverambur	1. Palaganamkudi 2. Valavanamkottai
	Manikandam	1. Ranji Nagar 2. Kulathur
	Jyakondam	1. Yayakondam
	Savarampadi	1. Managathi
THANJAVUR	Ammamet	1. Onbathurrvelly
	Thiruvayyur	1. Thiruvayyur
	Sengaripatti	1. Sengaripatti
PUKUKKOTTAI	Thiruvarakkulam	1. Papparamvad
	Pudukkottai	1. Mullur 2. Peringalur 3. Adhanamkottai
	Aranthangi	1. Kurumbur
<i>Kerala</i>		
TRIVANDRUM	Nedumangad	1. Karakulam 2. Arubikkara 3. Anad
	Peringadavila	1. Peringadavilla
	Vamanapuram	1. Nallanad 2. Pullampara
	Kilimanoor	1. Nagarur 2. Pulimath
	Chirayinkizh	1. Mudukkal
QUILON	Sasthamkotta	1. Sasthamkotta
	Ranni	1. Vadasserikkara
	Konni	1. Aruvappalam

District	Block	Panchayat
	Pathanapuram	1. Pattazhi
	Chadayamangalam	1. Chadayamangalam 2. Kadakkal
	Kottarakkara	1. Neliyam
ALEPPY	Kulanada	1. Nenmani
	Chengannur	1. Budhanur
	Ambalapuzha	1. Ambalapuzha
IDUKKI	Arudai	1. Numily 2. Mariapuram 3. Pampadumparai
	Devikulam	1. Santhanpara 2. Udumbanchola 3. Munnar 4. Marayoorlley
	Elamdesam	1. Idukki-Kanjipuzha
TRICHUR	Pazhayannur	1. Cheruthuruthi
KOTTAYAM	Kanjerappally	1. Erumeli 2. Koolckal
PALGHAT	Pattambitta	1. Kulakkallur
	Ottappalam	1. Ambalappara
	Althur	1. Althur
	Palthat	1. Malampuzha
	Attapadi	1. Agali 2. Sholayar
MALAPPURAM	Perinthalmanna	1. Thazakode 2. Perinthalmanna
	Thirurangadi	1. Vallikunnu
	Manjeri	1. Pulpatta
	Wandoor	1. Pandikkad 2. Karuvarakkundu 3. Kalikavu 4. Nilambur 5. Amarambalam

District	Block	Panchayat
KOZHIKODE	Kunnamangalam	1. Kuravattur
	Kalpetta	1. Kalpetta
	Sultanbattery	1. Nenmeni
	Balussery	1. Unnikkulam 2. Kayanna
CANNANORE	Mannanthodi	1. Vellamunda
		2. Thirunelli

APPENDIX II

Gazetteer of Panchayat localities where bonnet
macaque *Macaca radiata* exists according to
information collected through
questionnaires

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1. State : ANDHRA PRADESH

1. District : CUDDAPAH

1. Block : Rayachoty

Panchayat : 1. Rayachoty 2. Chennemukkepal 3. Abbavaram
4. Rowthukunta 5. Devapottur 6. Guttapalle 7. Bonamala.

2. Block : Rajampet

Panchayat : 1. Mylapalli 2. Devana chapalle 3. Chitvel
4. Cherlopalle 5. Thimmayapalem 6. Kampasamudram 7. K
Agreharam 8. Rajukunta 9. Rajampet 10. Peddakarampalli
11. Kuchivaripalle 12. Varadayaganipalli 13. Nandalur 14. Pon-
dalur 15. Kondur 16. Etimarpuram 17. Kattavaripalle 18. Kun-
danellore 19. Nukirenipalle 20. Taragutur 21. Utukur 22. Bham-
anapalle 23. Rollamadugu 24. R. Burduguntapalli 25. Pottapi.
26. Konapuram 27. Rangayapalli 28. Letaka 29. Adapur.
30. Nalapundypalli 31. Obilli 32. Narayanavelle 33. Kana-
ttarajapuram 34. Kampalakunta 35. Singanamala 36. Poli
37. Yandulur 38. Tallajaka 39. Hostavaram.

3. Block : Lakkireddipalli

Panchayat : 1. Marvellomadoke 2. Idupulapaya 3. Guvala-
cheru 4. Gopagudipalli 5. Neelakanthropet 6. Suddamalla 7. Vangi-
malla 8. Gadikota 9. Araveedu 10. Doppekalli.

4. Block : Pulivendla

Panchayat : 1. Vempalli 2. Pulivendla.

5. Block : Kodur

Panchayat : 1. Kukkaladaddi 2. Settigunta 3. Upparapalli
4. Venkatareddipalli 5. Chiyavaram 6. K. Buduguntapalli 7. Sura-
purajupalli 8. Kodur 9. Reddavaripalli 10. Ananthrayapet 11. Obna-
palli 12. V. V. Kandrika 13. Nagavaram 14. Bommavaram 15. B. P
Rachapalli 16. Thummakonda 17. Nagiripadu 18. Kampasamudram

19. K. S. Agraharam 20. Chitvel 21. Mylapalli 22. Makmarpuram
23. Yerraguntala kota 24. Korlakunta 25. Pedda Orampadu 26. Chi-
nna rampadu 27. Obularivaripalli 28. Reddipalli 29. Pullampet
30. Komanavaripalli 31. Puthanavaripalli 32. Vathalur.

6. Block : Porumamilla

Panchayat : 1. Badvel 2. Madakalavaripalli 3. Guntapalli
4. Somindanpalli 5. Porumanilla 6. Kalasapad 7. Cherlopalli
8. Chempalli 9. Vankamani 10. Kavalakuntla.

7. Block : Jammalamadugu

Panchayat : 1. Jammalamadugu.

8. Block : Sidhout

Panchayat : 1. Sidhout 2. Vanthalipalle 3. Jyothy. 4. Ponna-
volu 5. Lingampalle 6. Kadapayapalle 7. Takkolu 8. Machupalle
9. Peddapalle 10. Nekanapuram 11. Shakarajupalle 12. Boggadivari-
palle 13. Vontimitta 14. Salabad 15. Nadimpalle 16. Rachaguddi-
palli 17. Mantapempalli 18. Chintharajapalli 19. Moolapalle 20. S.
Rajampet 21. Jangalapalle 22. Uppera palle 23. Kotapadu
24. Kudumalur 25. Gangaperur 26. Pennaperur 27. Gollapalle
28. Kururguntala palle 29. Kondamachapalle 30. Yellampetta
31. Kalikiri 32. Madhavaram 33. Ponnapalle 34. Atloor 35. Muthu-
kur 36. Kumbagiri 37. Varikunda 38. Konduru 39. Chenduvayi
40. Malinenipatnam 41. Viroor 42. Jon avaram 43. Uppatur
44. Kamalakur 45. Madapur 46. Kamasamudram 47. Thamballa-
goni 48. Rajupalem 49. Thippanapalli 50. Rachayapeta 51. San-
drapalle 52. Brahmanepalle 53. Boddecherla 54. Rekalakunta
55. Settivaripalle 56. Obulam 57. Isukapalle 58. Ravalakollu
59. Eppiralla 60. Voguru 61. Vakamad 62. Pattapurayi 63. Kothuru
64. Vemalur 65. Bukkayapalle.

2. District : HYDERABAD

1. Block : Ibrahimpatnam

Panchayat : 1. Lingampally 2. Mangalpally 3. Yacharam.

3. District : KRISHNA

1. Block : 1. Chillakallu

Panchayat : 1. Jaggayyapeta 2. Vedadri 3. Chillakallu
4. Gandrai 5. Mukteswarapuram 6. Thakkellapdu 7. Sherm-
ohammadpetta.

2. Block : Avanigadda

Panchayat : 1. Venkatapuram

4. District : KURNOL

1. Block : Adoni

Panchayat : 1. Bychigeri 2. Nettekka 3. Salakalakonda
 4. Basarakadur 5. Pesalabanda 6. Tharapuram 7. Mantriki
 8. Daddanakeri 9. Halvi 10. Kawtalam 11. G. Hosalli
 12. Ganekal 13. Jalabenehi 14. Ballekallu 15. Yerigeri
 16. Chinnathumbalam.

2. Block : Atmakur

Panchayat : 1. Pinnapuram 2. Vempenta 3. Guntakantala
 4. Maddur 5. Nallakalva 6. Karivena 7. K. Bhanukacherla
 8. Bhanumakkala 9. Atmakur 10. Sreepathirapetta 11. B Ananthapuram
 12. K. Ramapuram 13. Abdullapuram 14. Velgode
 15. Bothukur 16. Juthur 17. Chelimilla 18. Oudyola 19. Iskala
 20. Nandikunta 21. Krishnapuram 22. Mustipalli 23. Siddepalli
 24. Ganapuram 25. Kokkerancha 26. Thummalur 27. Bathuvari-
 palli 28. Gokavrni 29. Edurupadu 30. Siddapuram.

3. Block : Nandyal

Panchayat : 1. Gani 2. Chindukur 3. Gadivemula
 4. Peserva 5. Bhojanam 6. Paramatur 7. Karimaddula
 8. Yerraguntta 9. Kakanur 10. Bhoomavaram 11. Pulimaddi
 12. Mungala 13. Korattamaddi 14. Gadigarevala 15. Durvesi
 16. Gorkal 17. Kondajutur 18. Polur 19. Udumalpuram
 20. Kowlur 21. Balapanur 22. Chilakala 23. Panyam
 24. Pinnapuram 25. Thamrarayupalli 26. Alamur K. Palli
 27. Alamur 28. Kanidedu 29. Bhupanapadu 30. Nerawada
 31. Maddur 32. Kathur 33. Gunthanala 34. Mitnala
 35. Brahmanapalli 36. Shegarchedu 37. Chapirevula 38. Kanala
 39. Chabolu 40. Noon palli 41. Ayyavarikedu 42. Parnapalli
 43. Bandi Atmakur 44. Ramapuram 45. S. Jatur 46. P. Devala-
 puram 47. Narayanapuram 48. Ernapadu, S 49. Kadamalakalva
 50. B. Kadur 51. Bukkapuram 52. Shimmapuram 53. Bollavaram
 54. Billalapuram 55. Kottala 56. Ayyakur 57. Ponnapuram
 58. Maseedpuram 59. Nandipalli 60. Shammadapalli 61. Gopa-
 yaram 62. Gajulapalli 63. Ernapadu W.

4. Block : M. V. Nagar

Panchayat : 1. M. Chintakunta 2. Kotapudur 3. Servel
 4. Yellavatnur 5. Bheerovalu 6. Sree rangapuram 7. Kotakuda
 8. Yerraguntta 9. Muthalur 10. Narsapuram 11. T. Lingadivve
 12. Mahadevpur 13. Kotakonda 14. Ch. Kombolur 15. P. Kombolu
 16. Rudravaram 17. Kondamayapalli 18. R. Nagulavaram 19. Alla-
 gadda 20. Chintalakunta 21. Alampur 22. Ghular-palli 23. Yada-
 mada 24. Kotakandukur 25. Lingamdinna 26. Pathakanduren
 27. Maddur 28. Kalugottepalli 29. Brahmanapalli 30. Nelampadu
 31. Settiveedu 32. Paddavangali 33. Chindalacherura 34. Chinnavan-
 gali 35. Yerragadidine 36. Chikkalur 37. Bathalur 38. Padakandla
 39. G. Jambaladine 40. Mandalure 41. Thodanalapalli 42. Puthapad
 43. Godignnur 44. Yallur 45. Gospadu 46. Rampalli 47. Pedda-
 bodanur 48. Chintakommudinne 49. Chinnabodanam 50. Govinda-
 palli 51. Kamminipalli 52. Jillilla 53. Chagalamarri 54. Mollavemla
 55. Gollur 56. R. Krishnapuram 57. Bachapalli 58. Aholilam
 59. Miltapalli 60. Deebaguntla 61. Kanalapalli 62. Sambavaram.

5. Block : Yemmiganur

Panchayat : 1. Kotekal 2. Devibetta 3. Malkapuram
 4. Gudekal 5. Nagaladinne 6. Kalludenanunta 7. 'Kosigi
 8. Vandagal 9. Chintakuntala 10. Sugur 11. Kuchipuram.

6. Block : Nandikotkur

Panchayat : 1. Bannur 2. Tarigopula 3. Parumanchala
 4. P. Lingapuram 5. Nandikatkur 6. Mandkur. 7. Thasthur
 8. Tangadancha 9. B. Kotkur 10. Bollaveram 11. Damagatla
 12. Nagaloote 13. Pagidyala 14. Beeravolu 15. Laxapuram
 16. Kadmur 17. Bannur 18. Choutkur 19. Rollapadu
 20. Cherukucherla 21. Bhyrapuram 22. Sunkarula 23. Nagathun
 24. Konediyala 25. Prathakota 26. Verramattam 27. Murali-
 madugu 28. Gummadapuram 29. Alluru 30. Vaddamau
 31. Bijimavemula 32. Mallyala 33. Alganur 34. Talkanur
 35. Midthur 36. Veepanagandla.

7. Block : Ranganapalle

Panchayat : 1. Gundalasingavaram 2. Yanakandla 3. Thimma-
 puram 4. Nandivargan 5. Appalapuram 6. Kupa 7. Venkatapuram
 8. Ramatheertha 9. Pasupula 10. Nandasaram 11. Banganapalle
 12. Yagurthipalli 13. I. Kothapetta 14. Mithapalli 15. Palkur

16. Krishnagiri 17. Mangampeta 18. Patrapadu 19. Erragudi
20. Cheruonpalli 21. Ramapuram 22. Merapuram.

5. District : MAHABUB NAGAR

1. Block : Manopad

Panchayat : 1. Maramungal 2. Undavelly 3. Takkasila
4. Kyathur 5. Rajoli 6. Linganrai 7. Tinnapur 8. Bonkur 9. Pullur
10. Sulthanpur 11. Korinipad.

2. Block : Mahabubnagar

Panchayat : 1. Vediba (M) 2. Yenugonda 3. Gurukonda
4. Morukonda 5. Kotakadira.

3. Block : Makthal

Panchayat : 1. Jaklair 2. Kotakonda.

4. Block : Kollapur.

Panchayat : 1. Kollapur 2. Pentlavelli 3. Bekkem 4. Basu-
pur 5. Dagada 6. Thomkunta 7. Peddamaroar 8. Dagadapalli
9. Jetprole 10. Venkatampalli 11. Malleswaram.

5. Block : Achampet

Panchayat : 1. Achampet.

6. District : NELLORE

1. Block : Atmakur

Panchayat : 1. Atmakur 2. Pongurukandraka 3. Devaraya-
palli 4. Bedusupalli 5. Battipadu 6. Minagallu 7. A. S. Peta
8. Raratampadu 9. D. C. Palli 10. Vaslli 11. Peramana 12. Depur
13. Mahimalur 14. Dubagunta 15. Rajavolu 16. C. B. Varam.

2. Block : Venkatagiri

Panchayat : 1. Alimili 2. Althurupad 3. Ammapalem
4. Ammavaripedu 5. Arimanipadu 6. Ativaram 7. Balayapalli
8. Bangarupeta 9. Bhattakanupur 10. Chapalepalli 11. Chelikanpadu
12. Cherireddipalli 13. Chilamanur 14. Chintagunta 15. Daygardhi
16. Dakkali 17. Dantardhi 18. Develepalli 19. Gottikodur 20. Gre-
ddapnram 21. Gurramkonda 22. Impura 23. Jayāmpur 24. Kada-
gunta 25. Kalavalapudur 26. Kamakur 27. Kareballavolu 28. Kaye-
pur 29. Kosambedu 30. Ludam 31. Lingasamudram 32. Madharava-
palem 33. Mannur 34. Marlapunta 35. Matu madugur 36. Mopur
37. Nidipalli 38. Palemkota 39. Palupodu 40. Paravolu 41. Periya-
varam 42. Pettur 43. Pigilam 44. Punnepalli 45. Sagatur 46. Sab-

ganapalli 47. Siddapunta 48. Thirthanpadu 49. Vallivedu 50. Velikallu 51. Vembuluru 52. Venkatagiri 53. Yatnalur.

3. Block : Vinjamoor

Panchayat : 1. Kota 2. Venkanapalem 3. Kothapatnem 4. Siddavaram 5. Chintavaram 6. Ballavolu 7. Kalavakonda 8. Thippagulipadu 9. Kondapuram 10. Yanupad 11. Mettu 12. Kadri vedu 13. Budanam 14. Nalaballe 15. Kesavaram 16. Yellesiri 17. Muthyalapadu 18. Thichavaram 19. Pallaneala 20. Udathavari-palam 21. Vallipedu 22. Annambaka 23. Jarugunvalli 24. Pudiraya-cloruvu. 25. Chittedu. 26. Gudali 27. Rudravaram. 28. Kothapalem.

8. District : ANATHAPUR

1. Block : Hindupur

Panchayat : 1. Badli 2. Chalivendala 3. Cholasamudram 4. Chaulus. 5. Decenakthi Ralli. 6. Gangapalli. 7. Gollapuram. 8. Gowrivaripetta 9. Kaggallur 10. Kommabaripalli 11. Kalluru 12. Kandisamudrum 13. Kodigarahalli 14. Kodiranda 15. Kodur 16. Kondur 17. Lepaksa 18. Kodiji 19. Mallapalli 20. Mandapalli 21. Manepalli 22. Kodihalli 23. Manesamudram 24. Moda 25. Mossalapalli 26. Mydugolam 27. Nasinayamcheru 28. Palasa-mudram 29. Pulamate 30. Puleru 31. Sreekankepuram 32. Sadlapalli 33. Santhelidur 34. Settipalli 35. Sirivaram 36. Somagutta 37. Utakur 38. Vadigepalli 39. Vanaoli 40. Yarraguntal 41. Parigi 42. Gorantta 43. Kothur 44. Kirikira.

2. Block : Penukonda

Panchayat : 1. Beedupalli 2. Narepalli 3. Tirumaladevarapalli 4. Gunipalli 5. Marala 6. Kattapalli 7. Amugondapaly 8. Elukuntla 9. K. hocherla 10. Kesapuram 11. Byrapuram 12. Talararla. 13. Kothakota 14. Kappalasanda 15. Vengalammacheruou 16. Pedaballi 17. Bandlapalli 18. Siddarampuram 19. Pothulakanta 20. Settipalli 21. Kodapaganipalli 22. Mylasamudrum 23. Kothacheru.

3. Block : Kadiri West

Panchayat : 1. Tummala 2. Pulukuntapalli. 3. O. D. Cherou. 4. Tippepalli. 5. Mahammadabad 6. Kalasamudram 7. Mudigubba 8. Gurjepalle 9. Sankepalle 10. Charupalli 11. Patnam 12. Lakka-samudram 13. Daburuvaripalli 14. Kadiriwest 15. Lingampalli 16. Amadagur 17. Kassamudram 18. Erradodi 19. Malakavemla

20. Vellameddi 21. T. K. Palle 22. Weera Ubanapalle 23. Muthyla cheruori.

4. Block : Tadapathri

Panchayat : 1. Yadiki 2. Peddapappur 3. Dharmapuram
4. Jatur 5. Rayala Cheruon 6. Vemulapadu 7. Nagarur 8. Tutra-
lapalli 9. Ruadana 10. Talaricheruon 11. Chikkepalli 12. Konu-
pallapadu.

5. Block : Kalyanduge

Panchayat : 1. Belusuppa 2. Hulikal.

6. Block : Chennokothapalli

Panchayat : 1 Thoguokota 2. Chennokothapalli 3. Naga-
ramedu. 4. Pulletipalli 5. Kuntimaddi 6. Ganthimarri 7. Kanamuk-
kala. 8. Ganginapalli 9. Polepalli 10. Nyamaddela 11. Ramagiri
12. Muttavakuntla 13. Kondappuram 14. M. C. Palli 15. Kanaga-
napalli 16. Mnktapuram 17. Mallakalava 18. Pyadhindi 19. Meda-
puram 20. Pothalanagepalli.

9. District : CHITTOOR.

1. Block : Gangadharanellore

Panchayat : 1. Potukanuma 2. Bracherupalli 3. Thalapulopalli
4. Nandanoor 5. Kalanagunta 6. Kotrakona 7. Oddepalli
8. Gangadharanellore.

2. Block : Madanapalli

Panchayat : 1. B. Kothkata 2. Gummasamudram 3. Ghattu
4. Kotavooru 5. Bayyappagaripalli 6. Chinnethippa samudram
7. Pothapolu 8. Malapadu 9. Matlivaripalli 10. Kurabalakon
11. Angallu 12. Bodikayalapalli 13. Beerangi 14. Nimmanapalle
15. Venganvangille 16. Agraharam 17. Tharlam 18. Kondamarri
19. Thettu 20. Yellapalle 21. Basirikonda 22. Bladanapalle
23. Valasapalli 24. Ankisittpalli 25. Madivedu 26. Kasavaripalli
27. Pichlavandlapalli.

3. Block : Bangarupalem

Panchayat : 1. Mogili 2. Mogilivaripalle 3. Paleru 4. Mogili-
venkatagiri 5. Putturu 6. Kanipakam 7. Marampalle.

4. Block : Sathyavedu

Panchayat : 1. Santhavellur 2. V. R. Kandriga 3. Karani
4. Baitakodiembedu 5. Sathamuedu.

5. Block : Karvethagar

Panchayat : 1. Karvetnagar 2. Thayyur 3. Pallur 4. Nara-
simharajapuram 5. Alathur 6. Annur.

6. Block : Pulicherla

Panchayat : 1. Bheemavaram.

7. Block : Chinnagottigallu

Panchayat : 1. Bodumalluvaripalli 2. Boddipalli 3. Regallu
4. T. Settivaripalem 5. Chittecherla 6. Kuppamuandepalli 7. Piler
8. Vepulabylo 9. Agraheram 10. Verragantlapalle.

8. Block : Chandragiri

Panchayat : 1. Chandragiri 2. Mittapalle 3. Renigunta
4. Mammandoor 5. Kavakambadi 6. Thiruchandur 7. M. R. Palli.

2. State : KARNATAKA

(Blocks are Taluks in the State)

1. District : NORTH CANARA

1. Block : Haliyal

Panchayat : 1. Chibbalogeri 2. Karlakutta 3. Hawagi 4. Ter-
gaon. 5. Nayoshettikup 6. Murkwad 7. Alur 8. Yedoga 9. Buzur-
kanjanalu 10. Mangalwad 11. Belawatgi 12. Hunswad 13. Madana-
lli 14. Dhagawati.

2. Block : Bhatkal

Panchayat : 1. Murukeri 2. Bailur 3. Konar. 4. Hadwalli
5. Koppa 6. Mavalli 7. Muttali 8. Mundalli.

3. Block : Siddapur

Panchayat : 1. Kosirsi 2. Kanchikai 3. Karlakai 4. Siralgi
5. Wajakod. 6. Hasargod. 7. Hostot 8. Kibballi 9. Gunjakkod
10. Gubbagod 11. Sovinakoppa 12. Kungod 13. Kavanchur
14. Kyadgi 15. Kansur 16. Bidrakur 17. Bedkani. 18. Itagi
19. Tyagli 20. Doddamane 21. Kavalleoppa 22. Kodsar 23. Nil-
kund 24. Mammane 25. Analabali 26. Bilagi 27. Halgeri.

4. Block : Sirsi.

Panchayat : 1. Sonda 2. Bisalkoppa 3. Fsoare 4. Jandgu
5. Mundgesur 6. Naroor.

5. Block : Supa

Panchayat : 1. Ambeli 2. Kateli 3. Castle rock
4. K. Jaida 5. Virnoli 6. Chinchkhed.

6. Block : Yellapur

Panchayat : 1. Wajralli 2. Nandolli.

2. District : TUMKUR

1. Block : Sira

Panchayat : 1. Dwaranakunti 2. Hemdore 3. Talakunda
4. Haldoderi 5. Hunsekutte 6. Yaladabagi 7. Vaddana-
halli 8. Magodu 9. Pattanayakkanaballi 10. Yaliyur
11. Bhoopasendra 12. Ramalingpura 13. Neraleguddu
14. Laksnmisagara 15. Tavarekere 16. Gopaladevahalli
17. Booranahalli 18. Buckkapatna 19. Huildone 20. Kotta
21. Bevinahalli 22. Panjihanahalli 23. Melliente 24. Sheebiag-
rahara 25. Dwaralu 26. Halenahalli 27. Kadavigere
28. Kallambella.

2. Block : Tumkur

Panchayat : 1. Sathyamangala 2. Hebbeker 3. Oorukere
4. Maralur 5. Kampamadodderi 6. Melekote 7. Malla-
sonda 8. Heggew. 9. Bedaguntra. 10. Swandenaballi. 11. Setti-
balli. 12. Devarayapatna 13. Thavarekere 14. Honsigere
15. Nidavalabe 16. Heblur 17. Kerulabalu 18. Kannakupee
19. Biralanalli 20. Shambonahall 21. Haregundgal 22. Arkere
23. C. T. Kere 24. Sirivara 25. Rayapura 26. Makanaballi
27. Areyur 28. Kora 29. Kemmanadodden 30. Bramasandra
31. Galigenaballi 32. Nagaralli 33. Gangonballi 34. Balla-
gere 35. Haralur 36. K. Palasandra 37. Obalapura
38. Abovala Agrabara 39. Beladhara 40. Kottigegolaballi
41. Sasalu 42. Maska 43. Chikkasarangi 44. Gulur
45. Hethenahalli 46. Myadala 47. Hirehalli 48. Hullenahalli
49. Honnudike 50. Narwganahalli 51. Holakal 52. Mulu-
gunte. 53. Kodagihalli 54. Urdagere 55. Anupanahalli

56. Doddanarabangala 57. Bugudanahalli 58. Bellavi 59. T. Gollahalli 60. Soregunte 61. Channenahalli 62. Kesaramadu 63. Manchalguppa 64. Kythasandra 65. Kuppur 66. Dibbur 67. Haredoddavadi 68. Seethakal 69. Aregujanaballi 70. Kestur.

3. Block : Koratagere

Panchayat : 1. Yalachiere 2. Jhovanikere 3. Mallekur
4. Agrahara 5. Negala 6. Pagarahalli 7. Dasalakute
8. Surenahalli 9. Pathaganahalli 10. Chilekanahalli 11. Byragondalu 12. Tumbady 13. Vaddagere 14. Singirihalli
15. Bomnaladupur 16. Yalerampura 17. Areserpura 18. Neelagondannalli 19. Berkepatna 20. Kolala 21. Kerdilate 22. Chinnhalli 23. A. Vakhatupura 24. Kurunnhote 25. Yelerampura.

4. Block : Tiruvekere

Panchayat : 1. Muniyur 2. Kunivenahalli 3. Talahere
4. Madihalli 5. Aralikere 6. Heggale 7. Dunda. 8. Banasandra 9. Neerakunda 10. Phorehawkmahalli 11. Guddenahalli 13. Dandhnashivara 14. Hadavanahalli 15. Honihalli
16. Kodajji 17. Ragavandevanahalli 18. Sampige Hosahalli
19. Sampige 20. Hashikonoanhalli 21. Dabbeghatta 22. Benahanaber 23. Beganerahalli 24. Arihaknahalli 25. K. Mawinahelli 26. Kanathuo 27. Thandaga 28. Sadurahalli
29. Sadurahalli 30. Mavinaker 31. Gonutumker 32. Mayasundra 33. Poravanahalli 34. Mugalur 35. Doddamalligere
36. Muthugadahalli 37. Boddesahikere 38. Jadiyu 39. Karakeer
40. Bythrhosahalli 41. Vitalapura 42. Seegehalli 43. Thailahalli 44. Ajjanahalli.

5. Block : Tiptur

Panchayat : 1. Gudigondanahalli 2. Rangapura 3. Keragodi
4. Dasarighatta. 5. Madenur 6. Shivara 7. Karikere
8. Goragondanahalli 9. Echanur 10. Karadi 11. Kibbanahalli 12. Beerasandra 13. Rajatadripura 14. Aralaguppe
15. Honnavalli 16. Dasanakotte 17. Hagkunike 18. Kalkere
19. Sarthavalli 20. Hulihalli 21. Thimmalapura 22. Nonavinakere 23. Karikere 24. Brudeghatta 25. Hunaseghatta
26. Nagaraghatta 27. Sugur.

3. District : CHITRADURGA

1. Block : Chitradurga

Panchayat : 1. Mallapura 2. Chikkabenur 3. Sollapura
4. Mampannanayakanakote 5. Bheemasamudra 6. Bharama-
sagara.

2. Block : Molakalmuru

Panchayat : 1. H. K. Halli 2. J. B. Halli 3. Konasagara
4. Siddapura.

3. Block : Hiriya

Panchayat : 1. Aimangala 2. Hemodal 3. Ambalagere
4. V. V. Pura.

4. Block : Holkere

Panchayat : 1. H. D. Pura 2. Cluckjajur 3. Chikkayeme-
gannur 4. Holalkere 5. Chikkandondi 6. Kalkere 7. Tiruma-
lapura 8. Thappadahalli 9. Gudimadu 10. Kudineerhalli

4. District : DHARWAR

1. Block : Shiggaon

Panchayat : 1. Shisuvirbar 2. Belavalkoppa 3. Attikeri.

2. Block : Hubli

Panchayat : 1. Waroor 2. Palikoppa 3. Channapur
4. Karadikoppa 5. Adagunchi 6. Agadi 7. Katnur 8. Halayal
9. Belagalli 10. Kamur.

3. Block : Rosni

Panchayat : 1. Rajur 2. Chikkamannur.

4. Block : Gadag

Panchayat : 1. Lalkundi 2. Hulkoti 3. Hombal 4. Nedgund
5. Malasamdri 6. Kurtakoti 7. Sortur 8. Havlapur.

5. Block : Naragund

Panchayat : 1. Benkop 2. Konnur.

6. Block : Hirekepur.

Panchayat : 1. Chikkayasolu 2. Rattihalli 3. Channulli
4. Buradikutti 5. Masur 6. Sathenahally 7. Aladageri
8. Nayayanda 9. Duvigahallin.

7. Block : Mundargi

Panchayat : 1. Mundwad 2. Allur

8. Block : Shrigatti

Panchayat : 1. Battur 2. Balshosur 3. Bellati 4. Bannikoppa 5. Badri 6. Adarkatti 7. Adarbilli 8. Chebbi 9. Doddur 10. Devilhal 11. Gojunur 12. Hallur 13. Hebbal 14. Itag 15. Kundriballi 16. Koganur 17. Kokkargundi 18. Konchigere 19. Machinaballi 20. Madhalli 21. Majjur 22. Nagarmadu 23. Ramgeri 24. Randur 25. Eusophad 26. Eugni halli 27. Surgang 28. Tankoppa 29. Yalavatti 30. Magadi 31. Udenaballi.

5. District : BELLARY

1. Block : Bellary

Panchayat : 1. Kolakallu 2. Kudithini 3. Veni veerapur 4. Sankanakal.

2. Block : Srikuppa

Panchayat : 1. Siriguppa 2. Konenigera 3. Muddtnur 4. Srigeri 5. Nittur 6. Deshnur 7. Bagiwadi 8. Udegalam 9. Gudda 10. Herkal 11. M. Sugur 12. Onanur 13. Hutehalli.

3. Block : Harapanahalli

Panchayat : 1. Togarikathi 2. Hulekatti 3. Uchangidurga 4. Arasigere 5. Shingriballi 6. Yarabalu 7. Haduballi 8. Kanchikerif 9. Ragimasalwada 10. Koolahalli 11. Hemagalakara 12. Yadiballi 13. Gundagatti 14. Punaohahalli 15. Teligi 16. Chivastahalli 17. Punabagatta 18. Gajapura 19. Benniballi 20. Chetniballi 21. Neelagudu 22. Mydoor 24. Uamaphatta 25. Tounder 26. Kanvihalli 27. Nandiberoor.

4. Block : Hadahalli

Panchayat : 1. Sogi 2. Ayyanahalli.

6. District : RAICHUR

1. Block : Deodurg

Panchayat : 1. Jalhalli.

2. Block : Gangavati

Panchayat : Basapattana 2. Odderhatt 3. Agoli 4. Mallapur
5. Hosahalli 6. Hulikinal 7. Anagundi 8. Hoskere 9. Kanakagiri
10. Ulenur 11. Nandihalli.

7. District : GULBURGA

Block : Vadagiri

Panchayat : 1. Koilur 2. Balichakkra 3. Yadahalli.

8. District : COORG

1. Block : Somwarpet

Panchayat : 1. Kodagaraballi 2. Dodduvallin.

2. Block : Mercara

Panchayat : 1. Mercara own 2. Hosilivi.

9. District : HASSAN

1. Block : Channarayapatna

Panchayat : 1. Doddakayagal 2. Beluguhu 3. Pidiga.

2. Block : Alur

Panchayat : 1. Doddakawagal 2. T. Gud lenahalli 3. Kiragadalu.
4. Aniogale 5. Madababu 6. Mallapura.

3. Block : Arkalgud

Panchayat : 1. Bannur.

10. District : CHIKMAGALUR

1. Block : Sringeri

Panchayat : 1. Dharekoppa 2. Halandur 3. Battegere
4. Kavadi 5. V Dyranyapura 6. Kerli 7. Nemmar 8. Markal
9. Herpur 10. Begar.

2. Block : Mudigere

Panchayat : 1. Niduvale 2. Kalasa 3. Halenudigere
4. Jogannakere 5. Gonibeedee 6. Mankonahalli 7. Thotadur
8. Halase 9. Devarunda 10. Sungasale 11. Darabahalli
12. Samse 13. Coove 14. Balur 15. Javally 16. Idakany
17. Bidoraballi 18. Chinniga.

11. District : BIJAPUR

1. Block : Jamakhndi

Panchayat : 1. Hanagandi 2. Kumbarnal 3. Yallati.

2. Block : Bilgi

Panchayat : 1. Girisagar 2. Badagi.

12. District : SOUTH CANARA

1. Block : Buntwal

Panchayat : 1. Kadishwalya 2. Kajakar 3. Kavalapadur
4. Manchi 5. Navoor 6. Uli 7. Vittalpadnu.

2. Block : Belathangady

Panchayat : 1. Loila 2. Nada 3. Koyyur 4. Kuventtu
5. Kaniyoor 6. Mithabagilu 7. Kaliya 8. Mundaje
9. Charmady 10. Neriya 11. Belal 12. Machina 13. Kokkada
14. Shishila 15. Hathyadka 16. Illanthila 17. Bandar
18. Urunvalur 19. Thannirupantha 20. Thekkar 21. Ujire
22. Venoor 23. Kukkeddi 24. Armody 25. Ahdije
26. Kashipatna 27. Naravi 28. Marody 29. Balanja
30. Shirlal 31. Maladi 32. Thanmasthala.

3. Block : Buttur

Panchayat : 1. Mundur 2. Aryapur 3. Balnad 4. Kolthige
5. Bajathur 6. Kodaba 7. Badagannur 8. Padavanoor
9. Kemminje 10. Shanthigodu 11. Kayyar 12. Aridka
13. Alankar 14. Nellyadi 15. Kutrupodi 16. Noonjibaltnila
17. Kaniyur 18. Nekkilyady 19. Savanur 20. PUNCHAPADY
21. Kedamvady 22. Haleneranky 23. Bantra 24. Nekkilyady
25. Aithoor 26. Golithattu 27. Konalu 28. Balya 29. Perambe
30. Kombar 31. Kudipady 32. Palthady 33. Kudhaar.

4. Block : Sullia

Panchayat : 1. Ballare 2. Kulanja 3. Marhanje 4. Pamaleethad
5. Thodikana 6. Aivernad 7. Subramanya.

5. Block : Udipi

Panchayat : Bargur.

6. Block : Coondapur

Panchayat : 1. Rudabarandady 2. Kalithodu 3. Gulvady
4. Paduvari 5. Kumbashi.

7. Block : Karkala.

Panchayat : 1. Hirgan 2. Nirebailur 3. Durga 4. Sooda
5. Nandalike 6. Heori 7. Mudredi 8. Shivpura.

13. District : SHIMOGA

1. Block : Shikarpur

Panchayat : 1. Hotanakatta 2. Balavanthekoppa 3. Begur
4. Matur 5. Sunnadakoppa 6. Suragihalli 7. Kanasoge.

2. Block : Hosanagar

Panchayat : 1. Telak 2. Nagar 3. Mellinabesige
4. Haniyur 5. Murullanpur 6. Sonale 7. Mumbar 8. Humcha
9. Halagudde 10. Nagodi 11. Gubbiga 12. Begadali
13. Karimane 14. Sulugoda 15. Nidagodu 16. Andagadodur
17. Mollika 18. Kallur 19. Amruth 20. Jamballi 21. Trinive
22. Kunjahanabe 23. Harohittah 24. Harattalu 25. Govattur
26. Chikkajane 27. Arasalu 28. Purapperome 29. Jeni
30. Horidravatti.

3. Block : Shimoga

Panchayat : 1. Gondichatnahalli 2. Bedarahasahalli
3. Abbalagere 4. Holehanasawadi 5. P Beernahalli 6. Umblebylu
7. Mathur 8. Kadekal 9. Maddinakoppa 10. Ayanur
11. Kotegannur 12. Navali 13. Sirigere 14. Veerannamma
Benavalli 15. Haranahalli 16. Mallapura 17. Ramanagar
18. Chamnenahalli 19. Hosahalli 20. Gajanur 21. Hosakopa
22. Choradi 23. Bakkoppa 24. Gopala 25. Kadikoppa
26. Nuvibe 27. Kachinakotte.

4. Block : Soraba

Panchayat : 1. Udri 2. Ulavi 3. Hiremagodi 4. Induvalli
5. Gudavi 6. Chikkabur 7. Lakkavali 8. Hirekosani
9. Agasanahalli 10. Kyasanur 11. Gendla. 12. Jade 13. Hasavi
14. Dyavanahalli 15. Mavali 16. Negavadi 17. Talagunda
18. Higgodu 19. Andagi 20. Moodidoddikoppa 21. Yennekoppa
22. Halesorab 23. Otur 24. Hosabale 25. Chikkidagodu
26. Samanavalli 27. Thattur 28. Huruli 29. Andavalli
30. B. Dodderi 31. Chandragutti 32. Hunchi 33. Nisarani

34. Anavatti 35. Kuntagalale 36. Nadahalli 37 Chikkachowti
 38. Bilavani 39. Kuppagadde 40. Mullaguppa 41. Barangi
 42. Induvalli.

5. Block : Tirthahalli

Panchayat : 1. Agumbe.

14. District : BELGAUM

1. Block : Ramdurg

- Panchayat : 1. Halawatti 2. Mudakkavi 3. Harikoppa
 K. S. 4. Horakoti 5. Mudenur 6. Sureham 7. Gatakonur
 8. Humpiholi 9. Mullur 10. Sidnal 11. Hoskere 12. K. Junpeth
 13. Kodachi 14. Kittur.

2. Block : Gokak

- Panchayat : 1. Gauag 2. Chichanadi 3. Upparatti
 4. Kemnanakol 5. Hadginballi 6. Kolavi 7. Maladinni
 8. Arabavi 9. Tigadi.

3. Block : Athani

- Panchayat : 1. Anapur 2. Khilegaon 3. Madabhavi
 4. Muragundi 5. Shiraguppi 6. Mole.

15. District : BIDAR

1. Block : Basavakalyan

Panchayat : 1. Sastapur.

16. District : KOLAR

1. Block : Sidhalaghatta

- Panchayat : 1. Kundalakurki 2. Arioor 3. Kothanoor
 4. Seagahalli 5. Bodagoor 6. Abloodu 7. Devaramallur
 8. Thummanahalli 9. Taladummanahalli 10. Appegowdanaballi
 11. Belluti 12. Palicharlur 13. Jangamakote 14. Mallur
 15. Venkatapura 16. Hosapet 17. Hearnahalli 18. Gampeer-
 nahalli 19. Melur 20. Sugutur 21. Bhaktharahalli
 22. Malamachanahalli 23. Cheemangala 24. Sadili 25. Dibbura-
 halli 26. Talakayalapetta 27. Thimnasandra 28. Devagana-
 halli 29. Gadimichenahalli 30. Settiker 31. Basettyhally
 32. Gaunjikente 33. Thimmanayakanahalli 34. Kannapanahalli

35. G. Kenuparahalli 36. Anemadugu 37. Amnagarahalli
38. Kolanayakanahalli.

2. Block : Chikballapur

Panchayat : 1. Harobandi 2. Marlakunte 3. Patrenahalli
4. Balakuntahalli 5. Addgal 6. Kethenahalli 7. Jotha-
varahosahalli 8. Ramapatna 9. Avalagurki 10. Yalagere
11. Mylappanahalli 12. Manjanabele 13. Doddamarali 14. Kondena-
balli 15. Agalagurki 16. Kuppahalli 17. Nandi 18. Sultanpet
19. Kuduvathi 20. Kangrekalve 21. Mustoor 22. Hirenaga-
valli 23. Peresandra 24. Nayanahalli 25. Dibbur 26. Thip-
penahalli 27. Madhurenahalli 28. Kolavanahalli 29. Kalawara
30. Aroor 31 Gundlagurki.

3. Block : Gudibanda

Panchayat : 1. Ullodu 2. Chendur 3. Samahalli 4. Dob-
barthy 5. Someswara 6. Tirumani 7. Polampalli 8. Yellodu
9. Hampasandro 10. Beechgnahalli 11. Vorlakonda.

4. Block : Gauribidanur

Panchayat : 1. Gangasandra 2. Gotekanapur 3. Kurubare-
halli 4. Hirebidanur 5. G. Bomnasandra 6. Gouribidanur
7. Kenkere 8. Madugere 9. Melya 10. Soniohanahalli
11. Sossur 12. Halagonahalli 13. Viduraswathy 14. Chick-
kakurgedu 15. Kalludi 16. Nakkalahalli 17. Mudalodu
18. Nagaragere 19. Thokalahally 20. Manivala 21. Vetadahosa-
halli 22. Namagondeu 23. Kadabur 24. Hudugar 25. D. Palya
26. Rayanahallu 27 Halchally 28. Upparahally 29. Sham-
pura 30. Guyyalahally 31. Minakanagurki 32. Jarabanda-
halli 33. Bisalahalli 34. Pura 35. Varavani 36. Hampa-
sandra 37. Anoodi 38. Alipur 39. Taridal 40. Dodda-
mallikere 41. Thondabhavi 42. Sothenahalli.

5. Block : Malur

Panchayat : 1. A. ambady 2. Kevalagiriyanahalli 3. Jeya-
manahalli 4. Araleri 5. Dinnyhorahalli 6. Hurlageri 7. Gund-
lepalya 8. H. Hosakote 9. Halepalya 10. Makerebilli
11. Rajenchally 12. Doddihallahalli 13. Nedaramangal 14. Bara-

gene 15. Challngenahalli 16. Lakkur 17. Byranahalli 18. Chickt
hirapilli 19. Kundasettihalli 20. Seethahalli 21. Bennaghatta
22. Balingenahalli 23. Kunasikote 24. Ettakodi 25. Nootway
26. Dinnahalli 27. Mastri 28. Doddadavanahalli.

6. Block : Chintamani

Panchayat : 1. Kagathi 2. Yagavagote.

17. District : MYSORE

Block : 1. Chamrajnagar

Panchayat : 1. Haradanahalli 2. Amachavadi 3. V. Chatra
4. Arkansettipura 5. Honnahalli 6. Arakalvadi 7. Yanahalli
8. Kilagere 9. Udigala 10. Harve 11. Maliyur 12. Thamma-
dahalli 13. Klalipura 14. Aralikatte 15. S. Marahalli 16. Umma-
thur 17. Jannur 18. Heggavadipura 19. Kuderu 20. Kempa-
nanura 21. Homma 22. Doddarayapet 23. Budithittu
24. Karijanjanpara 25. Mangala 26. Mariyal 27. Shivapura
28. Chandanavadi 29. Kodimole 30. Saragumole 31. Hebbasur
32. Horgalavadi 33. Punajanoor 34. Bedaguli 35. Nallur
36. Nagavalli.

2. Block : Yelandur.

Panchayat : 1. Yeriur 2. Ganagannur 3. Shivahally
4. Ambale 5. Mamballi 6. Gowdalli 7. Agara 8. B. R.
Hillo. 9. Gumballi. 10. Yerakampalli.

3. Block : H. D. Kote

Panchayat : 1. Alanaballi 2. G. B. Saragoor 3. Gangada-
gosalli 4. Kyathanahalli 5. H. G. Hallicircle 6. N. Belathur
7. Antheraswithi 8. Hosaholalu 9. Hegganur 10. Mullur
11. Chamalapura 12. D. B. Kuppe.

4. Block : T. Narasipura

Panchayat : 1. Mugar. 2. Hyakanur 3. Madrahalli
4. Madapara 5. T. Doddapura 6. Mavinahalli 7. Homige
8. Hiriur 9. Katiyune 10. Higgur 11. Somanthpura

12. Vijappur 13. Telkad 14. T. Bettahalli 15. Hdesolue
16. Horalahalli 17. Kolathey 18. Bomnahalli 19. Chidarahalli
20. Kannagahalli 21. Algudu 22. Doddabagil 23. Muthalavadi
24. Binahanahalli 25. Sosale 26. Yachanahalli 27. Thuraganur
28. Rangasandra 29. Thumbala 30. Kuppege 31. Hituvalli
32. Kothagalur 33. Vatal 34. Gangeswar 35. Kiragasume
36. Bynapura 37. Yododone 38. Kemperanahuddi 39. Kodi-
gahalli.

5. Block : Mysore

- Panchayat : 1. Mehalapura 2. Nagawala 3. Marballi
4. Dhanagohalli.

6. Block : Gundlupet

- Panchayat : 1. Yadavanahalli 2. Chikkoti.

18. District. BANGALORE

1- Block : Ramangaram

- Panchayat : 1. Koonagal 2. Lakshimipura 3. Bidadi
4. Shanumangala 5. Kylanacha 6. Averanally 7. Annahally
8. Bananloor 9. Lakkojanahally 10. Kootagal 11. Doddagangavadi
12. Heggadagere 13. Sugganaholi.

2. Block : Neelamangala

- Panchayat : 1. Kachandhalli 2. Byrasanara 3. Basavana-
halli 4. Mallarabanavadi 5. Mahchanahalli 7. Balamaranahalli
8. Honnasandra 9. Gauahalli 10. Yentiganahalli 11. Mandade-
pura 12. T. Begur 13. Arledibha 14. Arasinakunte 15. Mylana-
halli 16. Madalakate 17. Budihall 18. Kittanahalli
19. Machanalli 20. Rahuthanahalli 21. Gopalpura 22. Matha-
halli 23. Kadabagere 24. Sondekappa 25. Alur 26. Nagarur
27. Lakshimipura 28. Shivanapura 29. Dasanapura 30. Mada-
vara 31. Huskur 32. Lakkenanalli 33. Kambal 34. Shiva-
gange 35. Niduvanda 36. Baragenahalli 37. Honnanalli
38. Bargur 39. Kerakathiganur 40. Agalakuppe 41. Deva-
nahasahalli 42. Yelekyathanahalli 43. Sompura 44. Heggunda
45. Maralakunte 46. Lakkur 47. Narasipur 48. Billanakate

49. Makanakuppe 50. Obalapara 51. Kodihally 52. Jakkanahally
53. Doddabele 54. Hirebommanahalli 55. Tavarekere 56. Ha-
suravalli 57. Garubatta 58. Kuluvanahally 59. Hanne 60. Kona-
rayannahalli 61. Kodigehalli. 62, Byadarahalli 63. Kalalghatta
64. Isuvanahalli 65. Thymakondlu 66. Sreenivasapura.

3. Block : Devanahalli

Panchayat : 1. Avatti 2. Savahananalli 3. Bidalur.
4. Bommavara 5. Anneswara 6. Kannamangala 7. Bettakote
8. Channarayapatha 9. Ibalapura 10. Maliyur 11. Cheema-
chanahalli 12. Nallur 13. Somathanahalli 14. Budigere
15. Gangavara chowdapananhali 16. Venkatagirikote 17. Bijja-
wana 18. Narayanapura 19. Horahalli 20. Koramangal
21. Kommasandra 22. Mandibele 23. Viswanathapura
24. Koira 25. Aruvananalli 26. Karahalli 27. Kundana
28. Alurduddanahalli 29. Aradeshalli 30. Hegganahalli
31. Signahalli 32. Bettahulsur 33. Tharahunase 34. Dodda-
jala 35. Bagalur 36. Marchahalli 37. Bandikodigananalli
38. Tharabanahalli 39. Hunasamaranahalli 40. Huthanahalli
41. Gokave.

4. Block : Kanakapura

Panchayat : 1. Narayanapura 2. Be-Kuppe 3. Konasandra
4. Godkur 5. Averemala 6. Banavasi 7. Doddakabbahalli
8. Kaggalahalli 9. Sathanur 10. Nagarasanakote 11. Hari-
hara 12. Dalimba 13. Honniganahalli 14. Kachuvanahalli
15. Maralawadi 16. Chikmaralawadi 17. Chikkamuduvadi
18. Ydaamaranahalli 19. T Hosally 20. Thigalara Hosally
21. Uyyampalli 22. Haroshivanahalli.

5. Block : Doddaballapur

Panchayat : 1. Bhakhterahalli 2. Maralenahalli 3. Karanabe
4. Doddbalavengla 5. Doddahejjaji 6. Chikkabelavangala
7. Gantiganahalli 8. Malinajuganahalli 9. Kadanur 10. Kasahalli
11. Honvana 12. Ramadevanaballi 13. Kodihalli 14. Puttena
Agrhara 15. Ghannadeve Agrhara 16. Halenahalli 17. Macha-
guotanalli 18. Kadalappanahalli 19. Thalagaura 20. Arudi
21. Dadigattarahalli 22. Veerapura 23. Hulkunte 24. Kantan-
kurte 25. Hadonahalli 26. Chilenahalli 27. Thinnasandra.

3. State : TAMIL NADU

1. District : CHINGELPUT

1. Block : Sholavaram

Panchayat : 1. Padianallur 2. Angadu 3. Anani
4. Orakadur.

2. Block : Pallipet

Panchayat : 1. Kamarajpet 2. Perumanallore 3. Veligram
4. Pallipet TPe 5. Pallipat.

3. Block : Pozhal

Panchayat : 1. Andarkuppam 2. Narvarikappam.

4. Block : Poonamalle

Panchayat : 1. Veeraraghavapuram.

5. Block : Thirukalikundram

Panchayat : 1. Thirukalikundram 2. Vallepuram.

6. Block : Villivakkam

Panchayat : 1. Maduravayal 2. Ambathur 3. Nolambur.

7. Block : Kanchipuram

Panchayat : 1. Kanchipuram.

8. Block : Deharapakkam

Panchayat : Deharapakkam TPE. 2. Velamoor 3. Perumba-
irkandigai.

2. District : SOUTH ALCOT

1. Block : Mocaipur

Panchayat : 1. Kadachipuram 2. Arakandavallur 3. Mel-
valai 4. Otmiyatnur 5. Karanai 6. Sithattuar 7. Sithapattini
8. Kongayanur 9. Murukkambadi 10. Guludupamangalam
11. Athipakkam 12. Manampondi 13. Velandai 14. Nauna
15. Challankoppa 16. Sorragepalli 17. Nayanur 18. Devanur
19. Urapaudi 20. Sathiyakandam 21. Sennakuram 22. Kadayanur
23. Muyariyur.

2. Block : Thiyyadurgam

Panchayat : 1. Vengaivadi 2. Kudiyanallur 3. Kongarayapalayam 4. Udayanachi 5. Shinnagalur. Ninnayur 7. Sithathore 8. Arakalthur 9. Eyyaner 10. Chimmambathur 11. Thimalai 12. Thiyyegari 13. Peelamadu 14. Pallakuchi 15. Vadathirasalur 16. Thiyaya Durgam 17. Villakkur 18. Prithirimangalam 19. Mudujamur. 20. Sithalur 21. Porasakunchi 22. Virayanoor 23. Sathanur 24. Kannagur 25. Nagalur 26. Vadaponi 27. Kandachimangalam. 28. Uchimadu, 29. Varangaram 30. Vallakunchu. 31. Koothakondi, 32. Kernthalur 33. Dranji.

3. Block : Sankarapuram

Panchayat : 1. Ramthanallur 2. Mookapur 3. Arasambattu 4. Pootai 5. Messiruvalur 6. Olayalapadi 7. Porasapatti 8. Moongilthuraipattu 9. Vadaponparappi 10. Aruru 11. Manalur 12. Sankarapuram 13. Vadasinvallur 14. D. Pandalam.

4. Block : Chsnnasalam

Panchayat : 1. Amrayaguram. 2. Bangaram. 3. Eriyur 4. Amunandal 5. Karumkongli 6. Kaniyamur 7. Chinnasalem 8. Thoffapodi 9. Sembekaridity 10. Cethanur 11. E. Sandi 12. Tilasiyanallur 13. Amnakulathur 14. Pethasamuthram 15. V. Alampelam 16. Nainarpalayam 17. Thenchettyamdal 11. Vada-kkandal 19. Nallattum.

5. Block : Ulundurpet

Panchayat : 1. Asanur 2. Mazavarayanur 3. Pali 4. A. Sathanur 5 Sikkadu 6. Thiruppayur.

6. Block : Thirukoilur

Panchayat : 1. Vengur 2. Arumbakkam 3. Thanaganam 4. Melathalanur 5. Ariyur 7. Vemalur 8. Kadiyar 9. Senganakulam 10. Mudhalur 11. Thiranadur 12. Aviyur 13. Edaiyur 14. Sangiyam 15. Thinpalaipar 16. Aruthanguḍi 17. J Sithanoor 18. Koovamur 19. Mandanpura 20. Naiyandail 21. Thagadi 22. Thirikoilur.

7. Block : Melmalayanur

Panchayat : 1. Sitheri 2. Karnalam 3. Melachary 4. Valathi.

8. Block : Mangalur

Panchayat : 1. Adasi 2. Avatti 3. Akkanur 4. Alathur
5. Asolangudi 6. Eluthur 7. Edachenni 8. Ma Pudaiyur
9. Ma Pudu 10. Payanapadi 11. Parar 12. Pattakuruchi
13. Pulikarambalur 14. Sirukerambalam 15. Sirupakalai
16. Tuttagudi 17. Tholudur 18. Thachur 19. Mukottam
20. Kalvathur 21. Kandamatham 22. E. Keeranur 23. Keela-
cheruvai 24. Lakur 25. Mangulam 26. Mangalur 27. Mala-
danur 28. Medakolopama 29. Viyyansundal 30. Vadakarmpoor.

9. Block : Kammapuram

Panchayat : 1. C. Keeranur 2. Karmagudl 3. Oo-Man-
galam 4. Sathampghm.

10. Block : Mailam

Panchayat : 1. Kollar 2. Chendur 3. Vulamgambodi
4. Mailain 5. Thendapakkam 7. Rettan 8. Melperodikkam,

11. Block : Nallur

Panchayat : 1. Vengampur 2. Kariyur 3. Eriyur 4. Ko-
thattai 5. Gudalur 6. Kodikalam 7. Thiruvathathuram 8. Mam
9. Sethunarayanakuppam 10. Periavellur 11. Keelakuruchi
12. Naraiyur 13. Sirunagallur 14. Veppur.

12. Block : Vikravandi

Panchayat : 1. Kundalapuleyur 2. Vikravandi 3. Nemur
4. Mandagapattur 5. Muttathur 6. Melakondai.

13. Block : Panruti

Panchayat : 1. Panikkamkuppam 2. Kudiruppu 3. Marungur
4. Perpenam Kuppam 5. Manapathur 6. Kattugudalore 7. Kadam-
buleyur 8. Veeraperunanellur 9. Arasadikuppam.

14. Block : Thirunalur

Pauchayat : 1. Senthamangalam 2. Semmandal 3. Mada-
pattu 4. Mettathur 5. Siruthanur 6. Pandur 7. Semmanangur
6. Madhivanur 9. Ku. Kallakuruchi 10. Senguruchi 11. Vanam-
pattur 12. Arinatham 13. Udappankuppam 14. Senthandu
15. Andikuli 16. Thirunavalur 17. Nagar 18. Parikal
19. Kalamarudur 20. Kalvanur 21. Kuvagam 22. Kambattu,

23. Mepulujur 24. Nacharpettai 25. Nannaram 26. Kila-
kumardur 27. Korathur 28. Padur 29. V. Nemili. 30. Velur-

15. Block : Keerapalayam

Panchayat : 1. Ayee pettai. 2. Arnamangalam 3. Amba-
lavanampetta 4. Abukkampattu 5. Alappakkam 6. Athinaraya-
napuram 7. Andarmullipallam 8. Hallavanakuppam. 9. Kundi-
mallur 10. Krishnakuppam 11. kothandranapuram 12. Thambi-
pattai. 13. T. Palayam 14. Thendamanatham 15. Poovanikuppam.
16. Pethanaickenkuppam 17 Nalamudupettai 18. Valudalampattu.

16. Block : Vridhachalam.

Panchayat : 1. Gopurapuram 2. Kachirayanathan 3. Kuppa-
nathanam 4. Marumanam 5. Pudukoraipettai 6 Mangala-
npettai 7. Kovilanoor 8. Mi. Agaram 9. Rubanarayanallur
10. Sathiyavadi 11. Peralaiyar 12. Kartupanur 13. Karna-
thanam 14. Karuveppilankuruchi 15. T. V Puthur 16. Poova-
noor 17. Vijayanagaram 18. Seenbulakuruchi 19. Sitherikuppam 20. Peri-
yavadavadi 21. M. Parur 22. Chinaparur 23. Thottikuppam
24. Mathur 25. Aladi 26. Paranalur 27. Enimanur.
28. Manavalanallur 29. Komangalam 30. Thosavalur. 31. Valan-
kattin.

3. District : NORTH ARCOT

1. Block : Polur

Panchayat : 1. Polur town panchayat 2. Palvanthuvensam
3. Nanniyampattu 4. Kanamalai 5. Kalpattu.

2. Block : Kaniyambadi

Panchayat : 1. Adukkambarai 2. Kammasamudram 3. Ka-
mmavan pet 4. Mothakkal 5. Menjer pet. 6. Palavamathu
7. Pennalthu 8. Salamanathan 9. Thuthupet.

3. Block : K. V. Kuppam

Panchayat : 1. Thirumani 2. Latteri 3. K. V. Kuppam

4. Block : Thandarampet

Panchayat : 1. Agerampallypet 2. Allapamer Chinnayanpet.
4. Edathanur 5. Kannakudal 6. Kolamanjur 7. Perunderaipet.

8. Puthur 9. Radhapuram 10. Andipetty 11. S. Guddalore
12. Seerpapattu 13. Tandarapet. 14. Thanpudi 15. Thondamannur
16. Veeranam 17. T. Velu 18. Veppoor Chenkal
19. Quilam 20. Nedungadi.

5. Block : Arcot

- Panchayat : 1. Chakkaramallur 2. Kolminnal 3. Erunapet
4. Madapally 5. Neekendi 6. Kakkananpalayam 7. Kuniselapet.

6. Block : Natarampalli

- Panchayat : 1. Athurkuppam 2. Ekaspura 3. Natrampally.

7. Block : Anakavoor.

- Panchayat : 1. Nedungal 2. Veerampakkam 3. Echur.

8. Block : Thimiri.

- Panchayat : 1. Vilapakkam 2. Gundaleri 3. Kaniaoor
4. Kalavai 5. Varasur 6. Thimini.

9. Block : Vadavasi.

- Panchayat : 1. Kilokoralasvadu 2. Thellur 3. Mummeri
4. Anniyerpattu 5. Pulinoi 6. Vandavasi.

10. Block : Anaicur.

- Panchayat : 1. Anarcut 2. Elavambadi 3. Genganellur
4. Jarthanakollai 5. Kandaneri 6. Karadikudi 7. K. K. Krishnapuram
8. Kul kutnur 9. Melarasampet 10. Othiyathur
11. Palaniputtu 12. Peenjamandai 13. Poigai 14. Seduvalai
15. Thippesamudram 16. Visingipenain. 17. Odugathur
18. Pallikonda.

11. Block : Sholinghur.

- Panchayat : Thempalli 2. Veppalai. 3. Molpadi. 4. Ellayanellure
5. Marudalam 6. Velam 7. Kallankuppan.

12. Block : Arkonam

- Panchayat : 1. Jakkolam.

13. Block : Pernambut

- Panchayat : 1. Devalapuram 2. Chinnavangam 3. Parsanapally.
4. Kedavalam 5. Mittalam 6. Veerankuppam 7. Papparpally
8. T. T. mothen 9. Sathgam 10. Gundalapally

11. Mosdana 12. Pogalur 13. Udayandum 14. Vaduchir
 15. Chinnapallykuppam 16. Aran al Dargam 17. Malayanhut
 18. Karkoor 19. Chendathur 20. Masigam 21. Kaitasagim
 22. Chinna Thanalacheru 23. Balu 24. Perunanioi 25. Kotha
 palli 26. Erukkanib 27. Erigathur 28. Badharapalli

14. Block : Katpadi

Panchayat : 1. Thiruvalan 2. Sembrayanallore 3. Kandi-
 pedu 4. Kanigini 5. Saranthangal 6. Kanaganellure.

15. Block : Vellore

Panchayat : Thorapadi 2. Senpadi 3. Palamatty 4. Alla-
 puram 5. Sirakanji 6. Sadapeni 7. Thelur 8. Uboor
 9. Sekkanoor 10. Shennakkem 11. Kurasapam 12. Kamagam-
 puttur 13. Sathuvacheri 14. Almalangapura 15. Chetheri
 16. Ariyur 17. Budiri 18. Pulimodu 19. Atheyol 20. Peru-
 mugai 21. Kilmanoor 22. Melmonavoor 23. Ampooli
 24. Abdullapuram.

16. Block : West Arni.

Panchayat : 1. Onmupuram 2. Athimalai pettu 3. Rame-
 swari Kuppam 4. Iyyampalayam 5. Vanankutam 6. Puthur.

17. Block : Alangayam

Panchayat : 1. Purajabattu nadu 2. Pudurnadu 3. Nelli-
 vasal nadu 4. Nellickanoor 5. Vellakkuttai 6. Beenakulam
 7. Kothakottai 8. Narasingapuram 9. Nimoneyanpettu
 10. Reddiyur 11. Alangayan TPC 12. Madancheri 13. Palli-
 ppatu 14. Elayangaram 15. Veladhiganbenda 16. Melkuppam
 17. Jaffarabad 18. Devasthanam 19. Girisamudram 20. Sammar-
 dhikoppam 21. Neekanamalai 22. Chelliyappanoor
 23. Valayambattu.

18. Block : Kandili

Panchayat : 1. Vishamangalam 2. Vidramuthur 3. Matrapally
 4. Koratti 5. Chuvaranpatty 6. Thosanupally 7. Elavampatty 8. Vengala
 puram 9. Paramuthanpatty 10. Adhiyoor 11. Kupumbai
 12. Peerumbut 13. Simenpudu 14. Kashai.

19. Block : Chengam

Panchayat : 1. Kayampet 2. Melchengam 3. Melpalli-
 patum 4. Elankum 5. Puliyanpatty 6. Andipatty 7. Andanoor

8. Mepulthiyan 9. Pakkripalayam 10. Kariyanayalam
11. Uchimalaikuppam 12. Arattavadi.

20. Block : Wallajah

- Panchayat : 1. Lalapettai 2. Thangarakuppam 3. Gengadu
4. Valluvambakkam 5. Pandiyambakkam 6. Nottur
7. Shirumalaicheri.

4. District : SALEM.

1. Block : Mallasamudram

Panchayat : 1. Marapparai 2. Koothanathern.

2. Block : Attur

- Panchayat : 1. Ulipuram 2. Sendarapatty 3. Mammalai
4. Pachamalai.

3. Block : Peddanaickapalayam

- Panchayat : 1. Karaumandurai 2. Periyakalroyamelnadu
3. P. K. Hillskeelnadu.

4. Block : Thalaivasa

- Panchayat : 1. Thiyaganoor 2. Aragalur 3. Oeriyari
4. Thalaivasal 5. Veerayam 6. Sadasivapuram
7. Marrvikundam 8. Kallukottam.

5. Block : Sanakari

Panchayat : 1. Sankari Town.

6. Block : Kollihills

Panchayat : 1. Kollihills.

7. Block : Idappadi

Panchayat : 1. Pakkanadu.

8. Block : Kabilamalai

Panchayat : 1. Kabilakuruchi.

9. Block : Puthuchitram

Panchayat : 1. Mennampally.

10. Block : Valappadi

Panchayat : 1. Puluthikutta.

11. Block : Panamarathupatti

Panchayat : 1. Thumbalpatty.

12. Block : Lakkampatti

Panchayat : 1. Palamalai 2. Kolathur.

13. Block : Vennandur

Panchayat : 1. Amuralagund palayam 2. Ponparappipatty
 3. Komarapalayam 4. Minnakkal 5. Alampatty 6. Mattuve-
 lampatty 7. Palamthinnipatty 8. Alanadpatty 9. Athanur
 10. Thangapalayam 11. Kuttalatampatti 12. Pallavanchanpatty
 13. Keelur.

14. Block : Trichengode

Panchayat : 1. Karuveppempatti 2. Trichengode.

15. Block : Omalur

Panchayat : 1. Omalur.

16. Block : Yercaud.

Panchayat : 1. Jubilian Peak 2. Thalaisalai 3. Velur
 4. Vallakkadai 5. Majakuttai 6. Muleri 7. Puthur
 8. Kotterchedu 9. Yercaud.

5. District : COIMBATORE

1. Block : Valparai

Panchayat : 1. Valparai

2. Block : Thokanaicken Palayam

Panchayat : 1. Kondayampalayam 2. Kongarpalayam.

3. Block : Anthiyur

Panchayat : 1. Sankarapalayam 2. Basgur.

4. Block : Ammapet,

Panchayat : Ammapet,

5. Block : Talavady

Panchayat : 1. Byanapuram 2. Talavady 3. Hassanur
4. Lggalore 5. Mallanguli 6. Thiganarai.

6. District : THIRUCHIRAPALLY

1. Block : Thirumanur

Panchayat : 1. Manjaire 2. Elakuruchi 3. Sullanguai
4. Thuthar 5. Kuruvadi 6. Alagiyamanvalam 7. Kovilur
8. Melapalus 9. Poondi 10. Keelapalu 11. Varanavasi.

2. Block : Thuthiengarapet

Panchayat : 1. Thathengarapet.

3. Block : Manachanallur

Panchayat : 1. S. Kananur 2. Vengangudi 3. Kalpalayam
4. Poonampalayam 5. Ayyampalayam 6. Manmahanpalla
7. Alagiyahanavalam 8. Simputtur 9. Perahali 10. Vayrajar
11. Edanumalai 12. Shanamangalam 13. Siruganur 14. Thirup-
pattur 15. Kaiathurai 16. Grurgalur 17. Komalai 18. Nor
Karaimanickam 19. Kilinallur 20. Meltathur 21. Kovathegudi
22. Thuvvari 23. Bikahandakoil 24. M. P. Kovil 25. Theeram-
palayam 26. Thiruppayile 27. Thirunamarai.

4. Block : Veppur

Panchayat : 1. Olaipody 2. Naranai 3. Kelumuttur
4. Periavemnarai 5. Keelpuliyur 6. Chittali 7. Thingapuram
8. Vayalpady 9. Kuluperamoalir 10. Thirumodhurai 11. Labbaik-
kudikkadu 12. Perumathur 13. Othiyen 14. Adudurai.

5. Block : Marungapuri

Panchayat : 1. Kamultur.

6. Block : Thottiam

Panchayat : 1. Alagarai.

7. Block : Veppanthattai

Panchayat : 1. Eraiyur. 2. Kaikal athur 3. V. Kalathur
4. Kanyanur 5. Mettupalayam 6. Pimbalur 7. Iyan Periyur
8. Thevaiyur 9. Thendanthuai 10. Thiruvalandarai 11. Venkalam
12. Valikundapuram.

8. Block : Thuraiyur

Panchayat : 1. Singalamdapuram 2. Kombal 3. Vannadu
4. Keerumalai 5. Peerumalai 6. Sikkthanbur 7. Maduature.

9. Block : Kulithalai

Panchayat : 1. Kulithalai 2. Marudur 3. Rayenchari 4. K.
Rettai 5. Vadiyam 6. Sathyamayalam.

10. Block : Ariyalur

Panchayat : 1. Arayalur 2. Wakayanagram 3. Venke-
takrishnapuram 4. Thavathaikulam 3. Kairlabath 6. Rayam-
puram 7. Sennivarmani 8. Illuppariyur Pollavali 10. Peri-
yanagalur 11. Thelur 12. Vilaugudi 13. Kallankrichi
14. Manakkadi 15. Reddippaliyam.

11. Block : Manikandam

Panchayat : 1. Ahimdur 2. Sethurapatty 3. Naga-
mangalam.

12. Block : Andanalur

Panchayat : 1. Pettavaimalai 2. Perugamari 3. Thim-
pparadura 4. Chinthamani 5. Idankanni 6. Govindaputtur
7. Kaduvettan Kurulu 8. Karaikurichi 9. K. Karanperi
10. Kasankottai. 11. Kelanatham 12. Kodankur 13. Mana-
galthi 14. Nayankarai 15. Parukkal 16, Porpudhenthathur
17. Sahtamhadi 18. Sripurandam 19. Cholannade 20. T. Pular
21. Ithenkuchiperumalmethar 22. Udayavatham 23, Valaikuruchi
24. Hembikudi.

13. Block : Lalgudi.

Panchayat : 1. Ariyur. 2. Attikudy 3. Haredambil
4. Muthilambal 5. Mangalpuram 6. Jankamadjopuram.

14. Block : Uppiliapuram

Panchayat : 1. Pachaperunalpatti 2. Sirunavalur 3. Alathu-
daiyan patt 4. Solanapuram 5. Kollappalayam 6. Vaisikuruchi-
ppalayam 7. Thalugai 8. Balakrigh 9. Okkarai 10. Kanatchi-
puram 11. Eragudy 12 Maradi 13. Uppiliyapuram.

15. Block : Pullambadi

Panchayat : 1. E. Vellanur 2. Punjai sangenthi 3. Nagai-sanganthi. 4. M. Kannanur 5. Saradamangalam 6. Melarsur 7. Malvoll 8. Venketachalapuram 9. Kovandakuruchi 10. Pudur-palayam 11. Kallakudi 12. Alambadi 13. Virahalur 14. Thinnakkulam 15. Alambakkam 16. Vandhalai Gudalur 17. Thappai. 18. Pullambadi 19. Keelasasur 20. Mudinivattur 21. Orathur 22. Kallagam.

7. District : THANJAVUR

1. Block : Vedaranyam

Panchayat : 1. Kodikkadu.

2. Block : Kumbakonam

Panchayat : 1. Maharajapuram 2. Neerathanallur.

3. Block : Budalur

Panchayat : 1. Sanusapalti 2. Pudupatti 3. Deekha-samudram.

4. Block : Thiruvaiyur

Panchayat : 1. Mukasakalyanapuram 2. Thiruvayuram.

5. Block : Sambanakoil

Panchayat : 1. Sembenkoil 2. Parasalur 3. Kangasagram
4. Tranquar (TPC).

6. Block : Thiruppandal

Panchayat : 1. Thiruppandal 2. Naiyvasal 3. Thirumangai cheri.

7. Block : Nidamangalam

Panchayat : 1. Vadur 2. Poomluhar.

8. Block : Sirkali

Panchayat : 1. Poomluhar.

9. Block : Thiruidamarudur

Panchayat : 1. Govindapuram 2. Aduthurai 3. Thiruvindramurudam.

8. District : MADURAI

1. Block : Kottampatti

Panchayat : 1. Manakappachen 2. Sekkipatty 3. Sukkepatty
4. Kurangalagad 5. Kersempatty 6. Pattur.

2. Block : Dindigul

Panchayat : 1. Sirumalai.

3. Block : Cumbum

Panchayat : 1. Surulipatty.

4. Block : Meluri

Panchayat : 1. A. Valayapatty

5. Block : Andipatty

Panchayat : 1. Sultala puram 2. Mailadumpareri 3. Kada-
malai kundu.

6. Block : Odanchatram

Panchayat : 1. Odanchatrem.

7. Block : Madurai East

Panchayat : 1. Poyyakaraipatty 2. Arumanur.

8. Block : Kodaikanal

Panchayat : Kodaikanal.

9. District : RAMANATHAPURAM

1. Block : Kallal

Panchayat : 1. Amaraipatti. 2. N. Vairanpatti 3. K. Athen-
gandi 4. Pikarakudi 5. Talakkavoor 6. Kookaloor. 7. Elan-
gudi 8. Thattali 9. N. Keelarya 10. N. Melaiyar 11. Kalipuli
12. Siravayal 13. Thenyarai.

2. Block : Thirupathur

Panchayat : 1. Kimarapatti

3. Block : Arupukottai

Panchayat : 1. Palavanaltham

4. Block : Thiruchili

Panchayat : 1. Mandpasala

5. Block : Rirudhunagar

Panchayat : 1. Vahakarapatti 2. Vachakkarapatti.

10. District : VIRUNELVELI

1. Block : Ambasamudram

Panchayat : 1. Mannankovil 2. Adayarkulam 3. V. K.
Puram 4. Biparam II 5. Brahwadesan.

2. Block : Shencottah

Panchayat : 1. Shencottai 2. Ayikudy 3. Kilangudu.

11. District : DHARMAPURI

1. Block : Palacode

Panchayat : 1. Ganapathy and Bevahally 2. Periapatty
3. Padi 4. Hanumanthapuram 5. Karimangalam 6. Marandahalli
7. Palacode.

12. District : KANNIAKUMARI

Panchayat : 1. Melpuram.

4. State : KERALA

1. District : TRIVANDRUM

1. Block : Nedumangad

Panchayat : 1. Karakulam 2. Aruvikkara 3. Anad.

2. Block : Peringadavila

Panchayat : 1. Peringadavila

3. Block : Vamanapuram

Panchayat : 1. Nallanad 2. Pullampara.

4. Block : Killimanoor

Panchayat : Nagarur 2. Pulimath.

5. Block : Chirayinkizh

1. Panchayat : Mudukkal.

2. District : QUILON

1. Block : Sasthamkotta

Panchayat : 1. Sasthankotta.

2. Block : Ranni

Panchayat : 1. Vadasserikkara.

3. Block : Konni

Panchayat : 1. Aruvappalam.

4. Block : Pathanapuram

Panchayat : 1. Pattazhi.

5. Block : Chadayamangalam

Panchayat : 1. Chadayamangalam 2. Kadakkal.

6. Block : Kottarakara

Panchayat : 1. Veliyam.

3. District : ALLEPPY

1. Block : Kulanada

Panchayat : 1. Venmani.

2. Block : Chengannur

Panchayat : 1. Budhanur.

3. Block : Ambalapuzha

Panchayat : 1. Ambalapuzha.

4. District : IDUKKI

1. Block : Arudai

Panchayat : 1. Kumily 2. Mariapuram 3. Pampadumparai.

2. Block : Devikulam

Panchayat : 1. Santhanpara 2. Udumbanchola 3. Rajakkad

4. Byson valley 5. Konnathadi 6. Kuttampuzha 7. Munnar

8. Kauthallur 9. Marayoor 10. Vattarada 11. Senapathy.

3. Block : Elamdesam

Panchayat : 1. Vettiamattom 2. Idukki-Kanjipuzha.

5. District : TRICHUR

1. Block : Chalakkudi

Panchayat : 1. Pariyaram.

2. Block : Kodakkara

Panchayat : 1. Varandarappally.

3. Block : Vadakkanchery

Panchayat : 1. Varavur 2. Velur 3. Vadakkancherye.

4. Block : Pazhayannur

Panchayat : 1. Cheruthuruthi

6. District : KOTTAYAM

1. Block : Kanjerappally

Panchayat : 1. Erumeli 2. Koolickal.

2. Block : Erattupetta

Panchayat : 1. Teekoy 2. Poonjar—Thekkekara

7. District : PALGHAT

1. Block : Thirthala

Panchayat : 1. Anakara 2. Pattithara.

2. Block : Pattamoi

Panchayat : 1. Vallapuzha 2. Nellore 3. Kulakkallur
4. Parutnur 5. Thiruvegapuram.

3. Block : Ottappalam

Panchayat : 1. Ottappalam 2. Chalakara 3. Ananganadi
4. Ambalappara.

4. Block : Koyalmanam

Panchayat : 1. Pudussery.

5. Block : Althur

Panchayat : 1. Althur 2. Kizhakkanchery.

6. Block : Kollengode

Panchayat : Kodumba.

7. Block : Palghat

Panchayat : 1. Malampuzha.

8. Block : Sreekrishnapuram

Panchayat : 1. Thrikideri 2. Villinezh.

9. Block : Mannarghat

Panchayat : 1. Karimba 2. Pottessery 3. Thachanattukara.

10. Block : Attapadi

Panchayat : 1. Agali 2. Sholayar 3. Pudur.

8. District : MALAPPURAM

1. Block : Andathode

Panchayat : 1. Perumpadappu.

2. Block : Mankada

Panchayat : 1. Angadipuram 2. Mankada.

3. Block : Perinthalamanna

Panchayat : 1. Thazakode 2. Perinthalamanna 3. Vettathur.

4. Block : Vengara

Panchayat : 1. Vengara 2. Thenjipalam,

5. Block : Thirurangadi

Panchayat : 1. Mooriyoor 2. Vallikkunnu.

6. Block : Malappuram

Panchayat : 1. Oragam.

7. Block : Manjeri

Panchayat : 1. Trikkalangode 2. Edavana 3. Pulpatta.

8. Block : Kondotty

Panchayat : 1 Urangathiri

9. Block : Wandoor

Panchayat : 1. Pandikkad 2. Karuvarakkundu 3. Wandur
4. Kalikavu 5. Mampad 6. Nilambur 7. Karulai 8. Chunga-
thara 9. Vazhikkadavu 10. Edakkara 11. Amarambalam.

9. District : KOZHIKODE

1. Block : Kunnamangalam

Panchayat : 1. Kuravattur 2. Kodenchery 3. Kodyathur.

2. Block : Koduvally

Panchayat : 1. Thamarasseri 2. Puduppady.

3. Block : Kalpetta

Panchayta : 1. Kalpetta 2. Medpady 3. Vythiri
4. Pozhuthana 5. Thariyode.

4. Block : Sultanbattery

Panchayat : 1. Ambalavayal 2. Muttill 3. South Battery
4. Purakady 5. Kanniyampetta 6. Poothady 7. Pulpally
8. Nenmeni.

5. Block : Balussery

Panchayat : 1. Koorachundu 2. Unnikkulam 3. Panangad
4. Naduvannur 5. Kayanna.

6. Block : Perambra

Panchayat : 1. Chekkittapara.

7. Block : Thodanur

Panchayat : 1. Maniyur.

8. Block : Kunnummel

Panchayat : 1. Kavilumpara 2. Naripetta.

9. Block : Thuneri

Panchayat : 1. Vanimal.

10. District : CANNANORE

1. Block : Mannanthodi

**Panchayat : 1. Mannanthodi 2. Panamaram 3. Vellamunda
4. Thirunelli 5. Tharinhal 6. Thodernad.**

2. Block : Kuthuparambu

**Panchayat : 1. Kottyur 2. Kanichar 3. Aralam 4. Keezu-
rchavassery 5. Muzhakkunnu 6. Kolayad 7. Thillankeri 8. Malur
9. Chitteriparamba.**

3. Block : Irikkur

Panchayat : 1. Padiyur-Kalliyad.

4. Block : Thaliparamba

**Panchayat : 1. Kuramathur 2. Alakkode 3. Chappara-
padavu. 4. Thallparamba.**

5. Block : Payyannur

Panchayat : 1. Payyannur 2. Peringam Veyakkara.

6. Block : Neeleswar

Panchayat : 1. East Eleri.

7. Block : Kanjhangad

Panchayat : 1. Madikai 2. Panamthady.

8. Block : Kasargod

Panchayat : 1. Melampady 2. Muliur 3. Chengala.

9. Block : Manjeswar

**Panchayat : Kumhadje 2. Belloor 3. Onmakje 4. Puthige
5. Meenja 6. Vorkady.**





Bonnet Macaque (Male)