

## Territory and home range in dogs

### I. Introduction :-

Territory by definition is any defended area whereas home range is a bigger area within which animals usually confine their activities. Most vertebrates are territorial in nature . Several authors such as : Estes , 1969; Ables , 1969 ; Scott et al , 1973 ; Beck , 1973 b ; Beck , 1975 ; Taylor, 1988 ; worked on the territorial behaviour of wild canids. Ghosh , Chowdhury and Pal ( 1981 ) worked on the territorial behaviour of stray dogs in lower Bengal.

This chapter deals with territory size in the rural area and home range of dogs in both rural and urban areas in upper Bengal. An attempt is also made to find out different factors associated with territoriality.

### II. Methods of study :-

In order to determine home range size observations were conducted on 20 rural adult dogs of which 12 were males and 8 were females and on urban adult dogs of which 7 were males and 8 were females. Their movements for scent marking and foraging were observed individually during the day in 1987 and 1988. The habitat characteristics of these sites were also recorded in order to find out the factors related with the size of home range.

Observations on territory size were conducted only in the rural area. For this purpose 15 adult males and 15 adult female dogs were individually observed in both mating and nonmating periods during 1989 and 1990.

III. Climatic features and other characteristics of the rural  
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and urban study sites :-  
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Observations to determine territory and home range sizes were conducted in the main centre of the rural site in an area of 0.8 Sq. Km. with a human population of approximately 3000 and in the urban study site in an area of 0.32 Sq. Km. with a human population of about five thousand.

The rural study site differs from the urban habitat in having lower human population comprising mostly of farmers , tribals and agriculturer labourers belonging to low income group and few middle class people or families. Number of brick laid concrete buildings are fewer than in the urban study site. Stray dogs usually take shelter in the verandah of shops , houses and other structures in the locality. During birth season most dogs take shelter in safe places such as : old unused or flood-hit deserted houses , godowns , in the straw heaps , unused parts of cowsheds , poultrysheds etc. Some villagers provide them with shelter at the time of litter production , during severe winter and during monsoon. Some dogs take shelter

in the unused part of school building , village health centre , under the shade of railway station waiting room etc. Rural habitat is characterized by open cultivated field , pasture land , ponds , katcha roads , more of mud-walled thatched houses inhabited by people of lower socioeconomic status whose attitude towards the stray dogs are much more sympathetic than that of urban areas. Urban people do not allow the stray dogs into their houses. Large amount of food materials are thrown out in the garbage-dumps , street corners and drains by the side of the metal roads or lanes from households , canteens , hotels and restaurants . All these food items become immediately available to the urban stray dogs. Diverse interactions were observed among dog groups when they utilised these food stuffs. At the time of litter production urban mother stray dogs take shelter in warehouses , under wooden platforms of street side shops , dark narrow unused spaces between buildings and houses , ruined abandoned houses or any dark narrow spots inaccessible to man and domestic animals.

#### IV. Result and discussion :-

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Tables - 3 and 4 show homerange sizes of stray dogs of both sexes in urban and rural environments respectively. In rural site it is higher than that in urban areas.

Mc Nab , 1963 ; Kleiman and Eisenberg , 1973 are of opinion that abundance of food has the greatest effect on the size of home range. The present study supports the above view because availability of sufficient food within a comparatively smaller area in the urban site renders a large home range totally unnecessary. The situation is , however , the opposite in the rural study site. This finding also supports the work of Fox et al ( 1975 ) and Ghosh , Chowdhury and Pal ( 1981 ).

Tables - 5 and 6 show the territory size of rural adult female and male dogs respectively. It is found that both male and female dogs are territorial irrespective of seasons i. e. mating or nonmating. The only difference is that in both the sexes territory size extends considerably in the mating period. Kleiman and Brady ( 1978 ) stated that all canids are territorial in the breeding season , but it is found in the present study that they are also territorial in the nonmating season. Increase of territory size in the mating period was also reported by Ghosh , Chowdhury and Pal ( 1981 ). It may be regarded as an endeavour to achieve outbreeding too.

The size of home range was found to be equal to the territory size of group living stray dogs. Group living stray dogs had family relationship amongst themselves. All the members of a group were seen to participate in aggressive interactions ( group attack ) in presence of stranger dogs.

Larger home range of the stray dogs of Baltimore ( Beck , 1973 b , 1975 ) , of St. Louis ( Fox et al ,1975) and feral dogs in Alabama ( Scott and Causey , 1973 ) probably indicate less favourable habitat , with scarce food and mate availability.

In the present study it has been found that female dogs , in most cases , possessed larger territory and home range sizes than that of males. It may be due to the fact that mother-offspring bond among dogs continues to exist for a considerable long time even when the offsprings mature into adults and this is probably one of the main reasons for group formation.

Table - 3 Home range size of adult dogs in urban area.

Number of dogs		Average home range size ( Sq. Km. )
Male	Female	
1	3	0.004
3	2	0.003
2	1	0.002
1	2	0.001

Table - 4 Home range size of adult dogs in rural area.

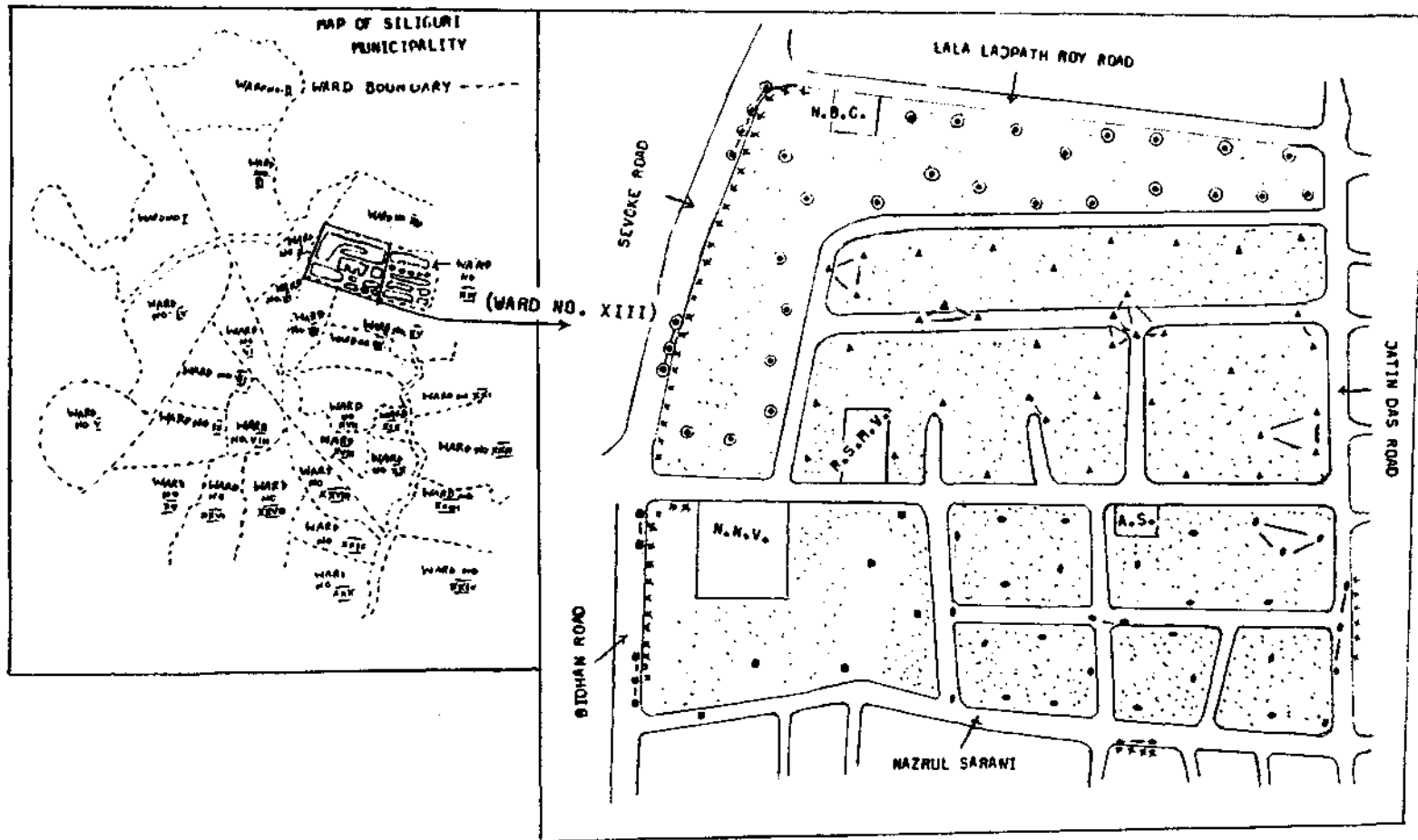
Number of dog		Average home range size
Male	Female	(Sq.Km.)
3	2	0.04
2	3	0.03
4	2	0.02
3	1	0.01

Table - 5 Territory size of rural adult female dogs in mating and nonmating season .

Number of female dogs	Average size of territory ( Sq. Km. )	
	Mating period	Nonmating period
7	0.03	0.001
8	0.04	0.003

Table - 6 Territory size of rural adult male dogs in mating and nonmating season.

Number of male dogs	Average size of territory ( Sq. Km. )	
	Mating period	Nonmating period
10	0.02	0.002
5	0.01	0.001

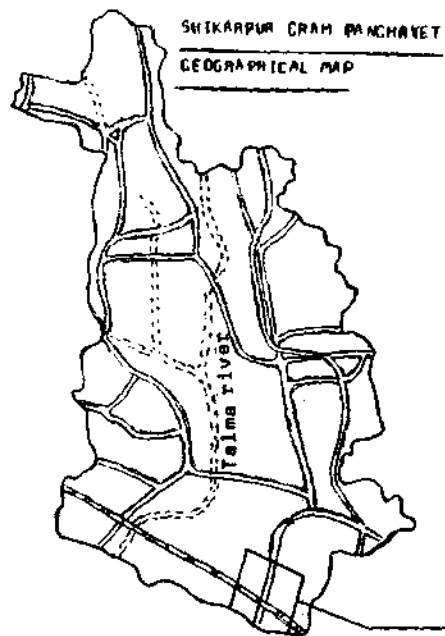


**REFERENCES :**

- |  |       |                                  |
|--|-------|----------------------------------|
| 1. SHOPS                                   | ----- |                                  |
| 2. METAL ROAD                              | ----- |                                  |
| 3. UPPER AND MIDDLE CLASS HUMAN HABITATION | ----- |                                  |
| 4. N.B.G.                                  | ----- | NEW BARUA GARAGE                 |
| 5. N.N.V.                                  | ----- | NIL NALINI VIDYAMANDIR           |
| 6. R.S.M.V.                                | ----- | RAMPKRISHNA SARADAMANI VIDYAPITH |
| 7. A.S.                                    | ----- | ANGELA SCHOOL                    |

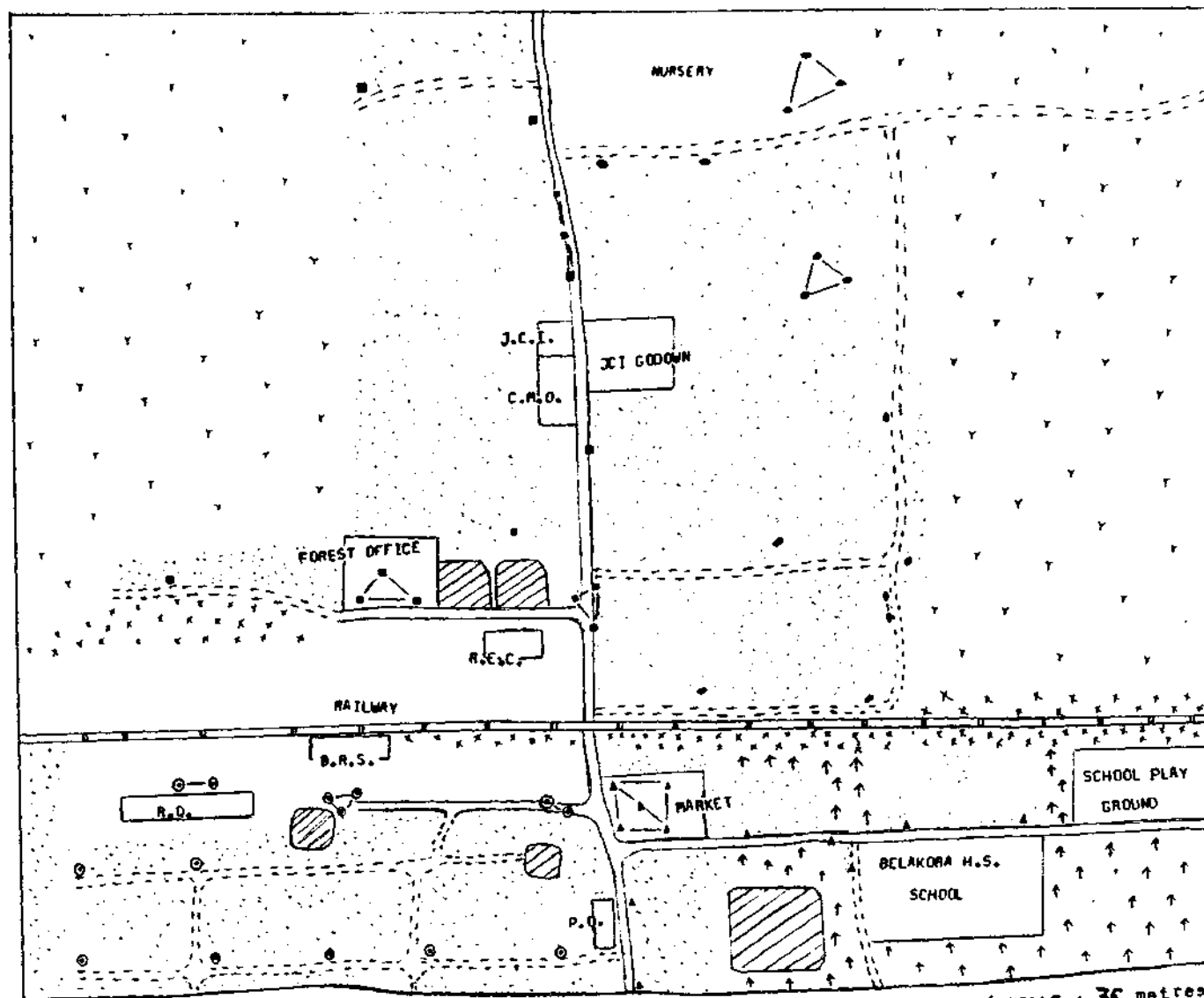
MAP : TERRITORY AND HOME RANGE OF SOME STRAY DOGS IN SILIGURI URBAN STUDY SITE ( SCALE : 1 inch = 152.3 metres )

- Legends :-
1. Round dots (⊙) indicating dogs with 0.003 km<sup>2</sup> home range. Round dots with lines (⊙—⊙) indicating the territory of the said dogs.
  2. Triangular dots (▲) indicating dogs with 0.002 km<sup>2</sup> home range. Triangular dots with lines (▲—▲) indicating the territory of the said dogs.
  3. Square dots (■) indicating dogs with 0.004 km<sup>2</sup> home range. Square dots with lines (■—■) indicating territory of the said dogs.
  4. Elliptical dots (●) indicating dogs with 0.001 km<sup>2</sup> home range. Elliptical dots with lines (●—●) indicating territory of the said dogs.



### REFERENCES

- |  |   |                                |
|--|---|--------------------------------|
| 1. SWAMP   | : |                                |
| 2. PADDY FIELD                                   | : |                                |
| 3. UPPER AND LOWER MIDDLE CLASS HUMAN HABITATION | : |                                |
| 4. METAL ROAD                                    | : |                                |
| 5. UNIMPROVED ROAD                               | : |                                |
| 6. POND  | : |                                |
| 7. PASTURE GROUND                                | : |                                |
| 8. P.O.  | : | POST OFFICE                    |
| 9. J.C.I.  | : | JUTE CORPORATION OF INDIA      |
| 10. C.M.G.                                       | : | CO-OPERATIVE MARKETING SOCIETY |
| 11. R.E.G.                                       | : | RAJLWAY EAST CABIN             |
| 12. B.R.S.                                       | : | BELAKOBA RAILWAY STATION       |
| 13. R.Q.   | : | RAILWAY QUARTERS               |



MAP : TERRITORY AND HOME RANGE OF SOME STRAY DOGS AT BELAKOBA RURAL SITE ( SCALE : 75 metres)

### Legends :-

- Unit 1. Round dots (●) indicating dogs with 0.002 km<sup>2</sup> home range. Round dots with lines (●-●) indicating the territory of the said dogs.
- Unit 2. Triangular dots (▲) indicating dogs with 0.001 km<sup>2</sup> home range. Triangular dots with lines (▲-▲) indicating the territory of the said dogs.
- Unit 3. Square dots (■) indicating dogs with 0.003 km<sup>2</sup> home range. Square dots with lines (■-■) indicating the territory of the said dogs.
- Unit 4. Elliptical dots (◉) indicating dogs with 0.004 km<sup>2</sup> home range. Elliptical dots with lines (◉-◉) indicating the territory of the said dogs.