4. GENERAL METHODS FOR OBSERVATION

4.1. INTRODUCTION

The primary means of studying animal behaviour in the wild is to wait patiently at a suitable spots where animals are likely to be observed most without disturbing them. Observation and experiment are the two primary methods for studying behaviour. The observer accumulates data on basic facts which can be tested by experiments and hence their combined efforts may result in more accurate facts and theories (Scott, 1958a). The most important thing in studying behaviour, however, is probably to record data systematically and accurately. Accuracy of recording can be increased by using portable cassette recorder, field binoculars, still-camera, stop-watch, measuring tape and movie camera, if possible. The use of movie camera is, however, limited by observability and finance. It is often necessary to correlate the observed behavioural data to time of the day and season, temperature, rainfall, humidity and other environmental variables. As such records of these parameters are also essential in the study of behaviour. The equipment used in this study are described in this section.

In order to record behaviour systematically two basic techniques namely 'instanteneous sampling' (Altmann, 1974)

and 'continuous sampling' over some unit-time, were used. The details of these methods are described in specific sections.

4.2. SELECTION OF STUDY AREA

A major portion of the forests of West Bengal is situated in the two northern districts i.e. Darjeeling and Jalpaiguri where 5 wildlife sanctuaries are present. Senchal and Mahanadi Sanctuary are in the former whereas Chapramari, Garumara and Jaldapara sanctuary lie in the latter. Although gaur are found in all the sanctuaries except Senchal, Garumara was selected after thorough investigation and survey because of their abundance.

Although small in area Garumara Wildlife Sanctuary is not homogeneous in nature. As such observability and concentration of animals at different parts of the sanctuary were different. The Jaldhaka Block, in the eastern part of the sanctuary was, selected for intensive study of gaur. There were at least two good reasons behind my selection of Jaldhaka Block as the main study site : (i) gaur herds spent a major portion of the day in this area, and (ii) observability from tree-tops and machans' was excellent as most of this area is under short grassland with sparsely distributed tall trees. This area was also not far away from watch camps.

Observations, however, were not confined to this block alone but was spread over other blocks of the sanctuary as well as in the adjacent beats outside the sanctuary such as Ramsai, Baradhighi, Khunia, Murty, Panjhora, Chapramari, Sipchu, Kumai etc.

4.3. STUDY PERIOD

A total of 27 months (May '80 to April '81; November '81 to June '82 and November '82 to May '83) were spent by the author at Garumara Wildlife Sanctuary. Observations were, however, broken by a period of 4 to 7 days in each month for consultation at the centre and other necessary purposes. The official records maintained by the forest department were used for short periods when I was away from the sanctuary. Records for other times are my own.

4.4. DAILY OBSERVATION SCHEDULE

Watch camps, such as Garati (Plate 4.1) and Bamni situated deep inside the forest from where grazing spots could be reached quickly, were used as a residential quarters over the whole period of my stay at Garumara Wildlife Sanctuary (Plate 4.1). Daily routine observations were divided into 3 shifts such as the morning (04.30 hour to 10.00 hour), the noon (10.00 hour to 15.00 hour) and the dusk (15.00 hour to

19.00 hour). In actual practice, however, the hours as scheduled above could not be followed exactly. But the deviation from the scheduled observation hours were never more than 30 minutes. In general, observations were made throughout the day encompassing all the three shifts. Besides, observations were made at any hour of the day whenever feasible. Seventeen wholenight observation (from 20.00 hour to 06.00 hour) were also made from watch tower during the study period.

4.5. MODE OF OBSERVATION

Detailed observations were mostly performed from tree-tops sometimes from machans suitably placed in the heart of the pasture. The machans were usually built on thick canopy sisu trees (Dalbergia sissoo) at a minimum height of 4 metres above the ground. The highest machans were about 10 metres above the ground from where wide areas could be observed without being detected by gaur or other mammals. Observation distance from machans varied from a minimum of 4 metres to above 300 metres. Jungly coloured costumes with predominance of light green and yellow were used during the field work which in most cases effectively camouflaged my presence.

Walking along the firelines, both inside and outside the sanctuary was also found to be a convenient means to observe gaur. The easiest and safest transport in the

thick tall grass jungles is provided by elephants. But it has several limitations such as : (i) unsuitable for continuous observation, (ii) some animals get away from the area on the sign of an approaching elephant and (iii) others who stay in the area may substantially alter their normal behaviour patterns.

4.6. EQUIPMENT USED

Observations were made with the aid of binoculars (7 X 35, Xenith) and with the naked eyes. Photographs were taken by a National-35 (1:2.8 lense) and an Asahi Pentax (1:1.4 lense) camera. A portable cassette tape recorder (National Panasonic, Japan) was used for recording observations. A stop-watch (Rocar, Swiss-made) was used to record time. Meterological records were taken with the help of Maximum--Minimum thermometer, Rain-gauge and dry bulb-wet bulb thermometer. Crackers provided by the forest department were used to disperse aggressive large mammals such as elephants (Elephas maximus) and rhino (Rhinoceros unicornis).

4.7. METHODS IN RECORDING BEHAVIOUR

Observational data were tabulated in the tally-sheets prepared separately for different behaviour patterns. In situations where previously prepared tally-sheets were not

appropriate for the situation recordings were done in the magnetic tape-recorder which were subsequently analysed in details and the tally-sheets were modified accordingly. Descriptive aspects of quantitative data recorded in tally-sheets were taken on note-books in the field and on return to the camp. A combination of these 3 devices were used in collecting behavioural data as demanded by specific situations.

Plate - 4.1 : The Garati camp deep inside the forest about 2 km. east of Garumara Rest House complex. This was used by the author as his residential quarter during the study period.

Plate-4.1