

4. GENERAL METHODS FOR OBSERVATION

4.1. Introduction

Study on the behaviour of free-ranging primates has been the subject of many recent field studies and as a result the comparative study of primate behaviour is beginning to take a concrete shape. Some generalizations are possible and the trends apparent in recent studies can be evaluated (Phyllis Jay, 1972).

In the nineteenth century, many notions about primate behaviour were formed from anecdotes, incidental observations and travelers tales. Yerkes and Yerkes (1929) summarized this early era in their book, "The Great Apes". Zuckerman's "The social life of Monkeys and Apes" (1932) also has had a profound and continuing effect. The pioneering efforts of those men systematized the study of primate behaviour to a great extent. Presently unseemly empirical observations gave way to valid systematic observations with quantitative data on monkeys and apes but also for all free-ranging animals. C.R. Carpenter's (1934) study on the howling monkeys has been a model for primate studies for quite a while.

Experiments and observations are the two main methods for studying behaviour of animals in the field. Niko Tinberger, Karl Von Frisch and Konrad Lorenz further established the importance of systematic accurate observations and experiments in the field. Von Frisch and Tinberger showed how observations and experiments can reciprocate each other. The commonest method for studying animal behaviour in the wild condition involves waiting patiently at a suitable spot where animals are likely to be observed most without disturbing them in any way and to record the data in a systematic manner on a well prepared data sheet. Quantitative data on behaviour is usually collected following two basic techniques i.e. "instantaneous sampling" (Altmann, 1974, 1980) and "continuous sampling" over some unit time. The observer gathers data on basic activities which can be

tested by experiments and therefore their combined effects often result in more accurate facts and theories (Scott, 1958).

Accuracy of recording data in the field can be enhanced by using tape recorder, binocular, still and movie camera, stop watch, measuring tape and other suitable instruments. Besides some biotic factors such as presence of predators, dominant member of opposite sex, proximity of parents or other altruistic events, it is also required to analyse the observed behavioural data with respect to time of the day, season, temperature, rainfall, humidity and other environmental factors. So, records of these parameters are also very important in the study of animal behaviour. The various equipment which were used in this study are described in this section.

4.2. Study Area

Malda district of West Bengal is renowned for its mango production. The amount of mango cultivation land is 245.6 sq. km. which is 6.58% of the total land area (3733 sq. km.) of the district. The mango cultivation land in the district is 37.55% in the context of West Bengal and 1.61% of India. The district produces 43.39% mango of West Bengal and 2.48% mango of the total country as a whole. The population of rhesus is high in extensive mango producing blocks, low in moderate mango producing blocks and nil in low mango producing blocks.

It is observed that monkey groups splitted into smaller groups in the non-mango season but coalesced again in the mango season in the mango producing blocks.

Mango is the chief cash crop of the district. Over 33% people are directly associated financially to this crop. As a result man-monkey conflicts takes place regularly in this district. Thus the mango orchards served as important study site for studying crop-raiding and man-animal conflict.

Collection of data on mango cultivation, plantation, preservation, marketing etc. involved all the 15 blocks of the district while for raiding of mango, man-monkey conflicts in the blocks with high monkey populations such as English Bajar, Ratua-II, Old Malda block and low population blocks i.e. Manikchak, Kaliachak-I and Ratua-I were utilized.

4.3. Study Period

The study spanned over a period of 7 years (April, 1995 to July, 2002) at different parts of the district. Observations, however, often discontinued for the 6-10 days in a month for discussion at the University Department and other relevant activities. The records collected by the field assistant were used for periods of absence of the author.

4.4. Daily Observation Schedule

Daily routine observations were divided into three phases i.e. morning (06.30 hour to 09.30 hour), noon (11.00 hour to 13.00 hour) and afternoon (14.00 hour to 18.00 hour). Deviation from the routine schedule of observations never lasted for more than 30-60 minutes. Often observations were started ahead of the schedule and some-times extended beyond it. In general, observations were made throughout the day, covering all the three sessions. It is to be pointed out that no attempts were made for nocturnal observations during the course of the study.

4.5. Mode of Observation

The distance of behavioural observation of rhesus varied from 2 metres to above 75 metres. Binoculars were used for proper observations when the distance was 50 metres or above (Plate.4.1.). Detailed observations were mostly done at specific activity sites during the activity or after the departure of the animals. The monkey groups were followed keeping a safe reaction distance from them whenever they moved from one spot to another either inside or outside of the mango orchards. In non-mango season sometimes the rhesus even venture to steal

food materials both raw as well as cooked from human households. So in this season observations on conflict between rhesus and human were conducted inside the dwelling house of the people of the area. Householders co-operated graciously on all occasions. During non-mango season vegetable fields such as brinjals, bananas, guavas, cucumbers, potatoes etc. were raided by the monkeys when vegetable plots served as observation sites. Incidence of direct competition and overt attacks on humans by rhesus were observed in human households, crop fields and even on roads.

By-cycling and walking through the roads both inside and outside the mango-orchards was found to be a suitable means during pursuing monkeys from one spot to another. A motor cycle (YAMAHA) was used (Plate.4.2.) for transport from one orchard to another but to avoid disturbing the animals by the sound of the motor cycle, the bicycle was used inside the orchards.

4.6. Equipment Used

In general, the monkeys were observed by naked eyes or field binoculars (Nikon Travelite-III, 7 X 20, 7.1). Photographs were taken by still camera (OLYMPUS, 700 X B, Lense : 38-70mm, f 5.6 / 9.6). A small portable tape recorder (PHILIPS, INDIA) was used for recording observations and monkeys vocalizations. A stop watch (GEM, Licence, hanhart, West Germany) was used to record time. A 50 metres cloth tape was used for measuring distance. Meteorological records were taken with the help of maximum and minimum thermometer, Rain-gauge and dry bulb-wet bulb thermometer. Data on specific parameters recorded by different Government and private organizations associated with meteorology, soil testing, food-processing and horticulture etc. such as Malda Mango Merchant Association; Department of Health Services, Govt. of West Bengal; Soil Testing Laboratory, Govt. of West Bengal; Meteorological Department, Govt. of India; Mango-planters guild of each block; Mango-product factories of Malda and some others were considered. Reasonable observations and accounts obtained from villagers were also recognized.

4.7. Methods of Recording Behaviour

Most of the observations were recorded in the well prepared data-sheets for various aspects of the study. Magnetic tape-recorder were used in recordings in conditions where previously made data-sheets were not applicable for some specific situations which were further analysed in details and the data-sheets were changed accordingly. Some descriptive observations were recorded at once in the tape recorder or in the field note book immediately after the event. All of these three devices were used in collecting data as demanded by specific situations. Data on areas infested by monkeys were collected by systematic survey, from the mango-planters guild and responsible reports from the local people. Specific data on human casualties due to monkey attacks were collected through house to house survey, from Government health centers and hospitals and also from responsible reports.



Plate : 4.1. The author in a study field observing monkeys with the help of binoculars.



Plate : 4.2. The field assistant on the motor-cycle.