

14. SUMMARY :

Ecological and behavioural study of rhesus monkey (*Macaca mulatta* Zimmerman) was performed at Baikunthapur Forest Division (257.13 Sq. Km. ; study area = 17 Sq. Km.) situated in Jalpaiguri district, West Bengal (26° 30' N and 88° 20' E). Average monthly maximum - minimum temperature and relative humidity at the Division ranged from 38.8° C to 12°C and 55.7% to 89% respectively. The average annual precipitation was 3387 m.m. Ten rivers and several waterholes provided abundant water to the Division throughout the year. Soil was mostly sandy and slightly acidic. Forest type is tropical semievergreen having three major forest covers : sal, riverine and grassland. The Division abounds with a variety of wildlife among which elephant, hog-deer, langur, peacock, horn-bill, etc. are the most abundant species.

Rhesus were broadly classified into four age-classes; adult male, adult female, juvenile and infant. Adult stage started from their third year of age while juveniles ranged from 1 to 3 years and infants were below one year. Body of adults were covered with light blackish to grey hairs while juveniles with deep blackish to grey. The infants had light grey to whitish coat. The colour of hind-quarters of adults were bright red while juveniles with flesh-colour to light tan. The infants had pale-grey with slight blackish. Adult rhesus are easy to sex by their external genitalia and other morphological features such as body size, body weight and skin etc.

Rhesus monkeys are permanent residents of Baikunthapur. They were observed at this division throughout the year. The maximum number of rhesus counted in May -June were 2800, 3049 and 3259 in 1987, 1988 and 1989 respectively. Population structure of rhesus at Baikunthapur was 37% adult females, 24.7% a adult males, 22% juveniles and 16% infants. Birth season extended over a period of 8 months with peak in May -June. Percentage of females with infants was 76.3%; birth rate ranged from 73% to 78.8%; mortality was comparatively high, 27.1%. It can be cited that present rhesus population of Baikunthapur is disturbed by human activity with moderate annual increase over three

years of the study period. Density of rhesus varied over the months and highest density (102 animals per sq. Km.) was observed in June, 1989.

Altogether 430 groups comprising of 299 male dominated groups, 77 female dominated groups, 39 dyads and only 15 solitary males were observed. Age and sex composition of groups were recorded. Percent males, females, juveniles and infants in groups were 24.7, 37.1, 22.1, and 16.1 respectively. Male - dominated groups were seen throughout the period whereas female - dominated groups were mostly observed in all the months except July and August.

Eight main types of activity i.e. feeding, resting, locomotion, social grooming, play, aggression, sexual inspection and copulation were observed among rhesus. Daily activity pattern showed that feeding activity peaked at dawn and dusk while mid-day hours were mostly resting periods. Most other activities appeared to be related to feeding. Different activities, however, appeared to depend on temperature, availability of food and social rank.

Rhesus monkeys are largely vegetarians. Although they are wide- spectrum feeder yet they were found to practise selective feeding to a considerable degree. Drinking bouts were observed from rivers, streams, pools, ditches and even from irrigation channel.

Rhesus groups were found to be dominated by an adult male in their day to day movement to and from their feeding and resting sites and also during daily feeding. Both sexes assumed the charge of dominating the group, but in most cases an aged adult male was the dominant. Dominants spend more time and investigation in the course of feeding bouts. Dominant males were avoided by other individuals possibly due to maintain stability of the group. Adult females showed strong social bonding among them within a group. The dominance acts among rhesus occurred in a hierarchical sequence, but the situation, changed considerably among male versus male interactions.

Reproduction in rhesus is seasonal of Baikunthapur Forest. Successful copulations were observed from September to February during my study period. The maximum number of copulations counted in October, November and December were 17.4%, 31.0%, and 29.0% respectively. The reproductive acts among rhesus occurred in hierarchical sequence, but the picture changed considerably during lack of availability of adult - partners. Three main phases of mating act i.e. pre-mating, mating and post-mating were observed among rhesus. Percent consort association attained during mating period comprised of dominant male-dominant female, dominant male - lower ranking female and peripheral male - dominant female were 61.7%, 16.3% and 22.0% respectively. The change of consort - partner was also observed. Several aggressive acts i.e. threat, chase, attack and bite were observed during mating.

In rhesus, mothers were observed to take total responsibility of rearing their infants. Mothers were strict and possessive. Mothering by biological mother and non-mother, females, however, appeared to depend on age, sex of infant and mother's dominance rank.

Existence of rhesus at Baikunthapur is at present under serious threat cause by deforestation, flood, erosion, disease, poisoning and encroachment by man. Present management system involving extension of forest areas, firing of grassland, security guard force, afforestation etc. are not sufficient enough to check declining rhesus population from further degradation and extinction. The author recommended some suggestions in order to improve management procedure for wildlife in general and rhesus in particular. Some of the suggestions were meant specifically for rhesus populations of Baikunthapur Forest Division.