

## 5. PHYSICAL FEATURES

### 5.1. INTRODUCTION :

Age and sex characteristics of rhesus monkeys is of great importance in behavioural studies. Actually it would be very difficult to study behaviour of a species in which all animals looked morphologically similar. Fortunately most animals exhibit some structural differences among the different age - sex classes. The physical distinctions among different age - sex classes in rhesus monkeys are discussed in this chapter.

### 5.2. METHODS :

Estimation of age and sex are the main two hurdles in the study of animal populations in the wild. There is no universal method by which one can determine the age and sex of wild animals in their natural habitat. The age and sex determination of rhesus was done by direct observation (Southwick et al., 1961) basing on some of the morphological characteristics such as body size, weight, colour, external genitalia, mammary glands base of the tail, fur and skin of the rump, etc.

### 5.3. RESULTS AND DISCUSSION :

#### 6.3.1. Age :

South Asian macaques are generally smaller. Like other small primates the accurate determination of age in case of rhesus monkeys is not easy. Examination of tooth eruption and replacement although permit easy recognition of age in the laboratory condition, is not suitable in the free ranging animals. It was, however, possible to have a reasonably accurate workable age - scale of rhesus monkey based on some easily visible morphological features such as weight, size and sexual skin, crown and some specific behavioural patterns as used by Southwick (1961). Individuals were categorised into 4 age

groups; adult male, adult female, juvenile and infant (Table - 5.1).

### 5.3.2. Morphological Features :

#### 5.3.2.1. Adult :

Sexual dimorphism is generally well marked and distinct among the macaques. Rhesus macaques usually become sexually mature following their third years of age when they began to show the dimorphic characters. Adults are with a rather short tail usually about half the body length i.e., head to base of the tail that is uniformly haired (Plate 5.1 and Plate 5.2). Hairs of the crown are directed backwards from the brows without a whorl and not forming a definite crest on the cheek, but usually a whorl low down on the cheek. The face which is bare, is light pink, flesh or reddish in colour. The head, shoulders, arms and foreback are generally olive - coloured, but speckled with duller or brighter buff while the loins, rump and the base of the tail are orange in varying intensities. The skin of the face, hands and feet is pale although the face is sometimes suffused with red. The males are with large penis with elongated gland. There is no catamenial swelling in the female, but the skin of the rump is often bright red. The vagina is situated just beneath the anus and is normally covered by the tail. The mammary glands are with two nipples that hang down from the breast region between the forearms. The glands can be seen in an anterior view (Plate 5.2). The body length including tail of the adults is given in Table - 5.1. The glands and the nipples are prominent in the lactating condition. Among macaques, males in general are appreciably larger and heavier than females (Table 5.2).

#### 5.3.2.2. Juveniles

They are usually 1 to 3 years of age having a smaller body size (Plate 5.3) and lack the red sexual skin. Body colour ranges from deep bluish to grey with prominent flesh to light tan colour in the hind-quarters. Juveniles were identified as young which were largely independent of the mother, definitely weaned and body weight ranges from 2.5 Kg.

to 5.5 kg. They were sometimes found to be associated with their mothers. They were also found to play with infants. Head and body length of juveniles measured about 26 to 32.7 cm. The length of the tail is about 11.5 to 16.8 cms. (Table 5.1).

### 5.3.2.3. Infant :

They were less than one year old having a light grey to white in body colour (Plate 5.3) with pale grey to slight blackish colours in the hind-quarters. The average body length of infants is discussed in the table 5.1. The average body weight of infants were 0.28 Kg. to 0.72 Kg. (Schultz, 1969) and were judged to be less than one year old. They frequently moved some distance from mother during play or feeding but most of the time they remained closely associated with the mother.

Data on body size and weight of different categories of individuals of rhesus macaque were recorded by Shortridge (1914), Schultz (1933, 1969), Napier and Napier (1967) and Fodden (1971).

### 5.3.3. Sex :

Unlike age, adult rhesus monkeys are rather easy to sex in the wild because the external reproductive organs of both sexes could be seen from a distance (Plate 5.1 and Plate 5.2). But it was difficult to determine the sex of young ones because of their less prominent sex organs. As such no attempt was made to determine their sex in order to avoid bias. Besides external genitalia and mammary glands several morphological features such as body size, body weight, body colour and skin of the hind-quarters also helped to distinguish males from females (Table 5.1). In arboreal primates dimorphism is weak or absent (Mohnat, 1977). In general, males are larger than females in less arboreal or semiterrestrial primates, such as baboons and macaques (Schultz, 1969) and are capable of defending the group from predators.

Table - 5.1 : Age - Sex class of rhesus monkey depending on some morphological Characters (Measurements are approximate)

Age Class	Age (in Years)	Body colour	Colour of hind quarters	Head and body length (in Cm.)	Total Length (Cm.)	Body Weight (Kg.)
Adult Male	Above 3	Light blackish grey	Bright red	48.5-63.5	20.3-30.3	5.6-10.9
Adult Female	Above 3	Light blackish grey	Bright red	47.0-53.1	19.0-28.5	3.0-10.7
Juvenile	Above 1 less than 3	Deep blackish grey	Flesh colour red to light tan	26.0-32.7	11.5-16.8	2.5-5.5
Infant male	Less than 1	Light grey to whitish	Pale grey with slight blackish	16.4-22.6	6.3-10.5	0.30-0.77
Infant female	Less than 1	Light grey to whitish	Pale grey with slight blackish	15.3-22.0	5.0-10.0	0.26-0.67

Table - 5.2 : Size and weight of different Macaque species  
(Measurements are approximate)

Name of Species	Average head and body length in (cm)		Average tail length in (cm)		Average body weight (kg)	
	Adult Male	Adult Female	Adult Male	Adult Female	Adult Male	Adult Female
<i>Macaca arctoides</i>	64.5	50.35	7.0	3.5	12.0	10.0
<i>M. assamensis</i>	52.8	48.35	28.2	22.5	8.5	5.7
<i>M. fascicularis</i>	53.0	47.7	51.5	47.5	5.0	4.1
<i>M. nemestrina</i>	74.5	48.85	20.25	16.5	10.35	7.65
<i>M. radiata</i>	55.75	43.5	60.0	55.75	8.65	5.0
<i>M. silenus</i>	56.0	46.0	32.0	38.7	6.8	4.2
<i>M. sinica</i>	48.7	43.7	58.5	51.7	6.4	3.85

**Plate - 5.1 : An adult male showing large, muscular and strongly build body with prominent cheek pouch.**

**Plate - 5.2 : A consort-pair during breeding season. Arrow shows the adult female.**

**Plate - 5.3 : Infants play with an adult male of the group, while on the ground. Arrow shows a juvenile.**



Plate – 5.1



Plate – 5.2



Plate – 5.3