



## ORIGINAL ARTICLE

### Behavioural Study of Rhesus Monkey, *Macaca mulatta* in Agra

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#### ABSTRACT

*Rhesus monkey is very important from behavioural point of view as it is more related to us in concern to behavior. Secondly, rhesus monkey is very common and living in vicinity to humans which make this study relevant. In the present study behavioural observations were done in rhesus monkey in urban area, S.N. Medical College, Agra with standard protocol and procedures. The results were encouraging and add new knowledge to the field of behavioural science.*

**Key words:** Behavioural Study, *Macaca mulatta*, Agra

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#### INTRODUCTION

From an evolutionary point of view, the order primates include some of the most complex and highly evolved taxa in terms of their social organisation and inter-individual relationship. Primates live in group of varying sizes that exhibit different degrees of social complexity, ranging from solitary individuals that associate occasionally, to large troops comprising several males and females. The successful functioning of any primate society emerges partly from the interactions between the individuals of the group and their environment, and partly from the social relationship between the different individuals that comprise the society (Dunbar 1988). From tiny insect eating tree shrew to man, there are some two hundred living species which are grouped together in the order primates. They are further classified into four major groups know as the prosimians, the new world monkeys, the old world monkeys and the anthropoids (apes and man). Field studies on the social life of non-human primates have been conducted by keeping in view various objectives. It is one way to the intricate mechanism of human adaptive behavior. Since non human primates are our closest phylogenetic relatives and share with us many physical as well as behavioural characters, it is logical to think that those character might have evolved to serve similar functions in human and non-human primates. Monkeys live in diversified habitat as do humans but their social organizations are simpler than humans. Therefore, it is imperative to conduct field studies on socioecology of monkeys. There are some unique features of social life which characterise all species of primates. Those features are sociality as a way of life, long and intensive mother-infant bond role of learning and imitation in cultural transmission and well developed social network. The study of man like creatures has been a fascinating science from the time immemorial. The study of monkeys and apes come under primatology which has attracted attention of many observers all over the world. Monkeys and apes have been living with humanity to close harmony in the natural

environment and there are surprising resemblances between human beings and non-human primates. The similarities have always fascinated man and he was Indian primates are rare, almost no efforts have been made to devise or evaluate conservation strategies for these species from the perspective of the species behavioural profiles or individual behavioural decisions. The macaques (genus *Macaca*) with 19 species distributed mainly across a range of ecological habitats in Asia, represent the most socially diverse of all the cercopithecin primates. Long term field studies of macaques in their natural habitats are, however, rare and only captive groups of about 6-8 species have been studied to any great detail. Given that many of the macaques are also threatened or endangered, particularly, in India, such knowledge is also essential if we are to understand the social dynamics of these troops, particularly in relation to their ecology. This can also be used to devise appropriate conservation strategies for their management. Hindus especially consider monkeys very sacred and the protection is further strengthened by God Hanuman who with his monkey army helped the divine prince Rama to rescue his bride Sita from Ravana.

#### **MATERIAL AND METHOD**

The present study was carried out in urban area in Agra City. The population of monkey is distributed in different types of group structures. Monkey a term used to denote any higher primates (Sub-order-Anthroidea) that is not an ape or man. It indicates any member of the infra order Platyrrhina (New world monkey and marmosets) as well as any member of super family Cercopithecoidea (Old World Monkeys), family Cercopithecidae and subfamily- Cercopithecinae of the infra order catarrhina. "Monkeys" apparatus, most member being quadrupedat; but even this is very ape like in some species. The term "ma" derived from the medieval "Monks" (meaning-mannikin-a little man, a Pigmy, a dwarf, anatomical model of the human body). A recent ingenious alternative has been proposed, that the name is misreading of the Greek for monkey or ape, pithecos, in Greek Script.

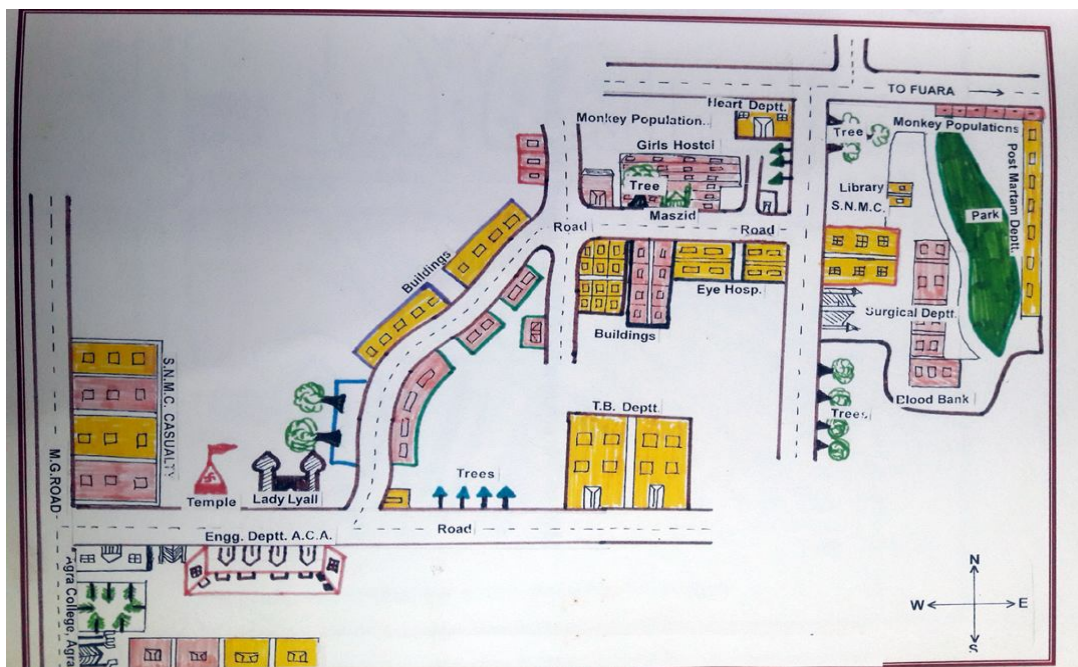
The present investigation has been undertaken to study the behavioural assessment and intraspecific relationship of the North Indian monkey *Macaca mulatta* in some localities of Agra region specially in the S.N. Medical College. The monkeys are closely related to the baboons. Since time immemorial, they have been closely living with human populations. The macaques in general are the most familiar monkey to the general public both in zoological gardens and in medical research institutions; the rhesus monkeys being the commonest. In India they are known by different names in various states. They are called Bandar in Hindi, Markot in Oriya, Suhu in Lepcha, Kothi in Telugu, Baandar in Punjabi. This is the species which is commonly seen with "bazigars" in North India. Description External Features: Rhesus monkey is medium sized 20- 40"(50-60 cms.) head and body length, and tail 8-12"(20-30 cms.) long. It has simple hair pattern, with the hair on the crown directed backwards from the brows, it is brown with brighter orange-red hind

#### **FOCAL SAMPLING:**

Focal sampling involves the observation of behaviour of a single animal for a specified amount of time. All instances of the animal's behaviour and its interaction with other animals in a group are recorded. During observation period the individual may get partially obscured or may go out of sight. In such a case, recording is stopped until it is visible again. Using this technique, the animal is observed from atleast of two hours to a maximum of twelve hours a day. Each observation hour is divided into four equal parts of fifteen minutes sample period. Each sample period has a sample time of ten minutes followed by a sample interval of five minutes.

**STUDY SITE:**

*Macaca mulatta* is primarily arboreal but also live on the rooftops and secluded places of the buildings from where they can easily escape the danger. In Agra city (urban area) they are mainly concentrated in congested and crowded area with thick human population especially Raja Ki Mandi Railway Station, Pipal Mandi, Kinari Bazar, S.N. Medical College, Rawat Para and Agra College playground. For the present study in the urban area the selected study site is S.N. Medical College for the study purpose. The study was chosen because of the following factors (1) Sizeable population of *Macaca mulatta* reside in the urban and rural region of Agra District without any definite programme to maintain their number. (2) These regions have a variety flora fauna and artificially supplied food by the local population. Thus conditions are suitable for the study of these macaques.



**Fig. 1:** Study Site

**RESULTS AND DISCUSSION**

Common monkey *Macaca mulatta* at Agra city and adjacent rural areas lives in the close proximity with human population. For the present study of the behaviour of macaques in urban and rural areas; two urban study site in Agra city viz. S.N. Medical College was selected in which the monkey populations were designated as group R1, R2 and R3 respectively. A detailed account of observations made during the course of study regarding different behaviours of urban populations of monkey *Macaca mulatta* for two years i.e. From Jan. 2002 to Dec. 2003 have been compared with the findings of other workers. In the present study 29 animals were recorded in the groups R1 in urban study areas of Agra. Seth (1984) conducted a study on the population trends in naturally occurring rhesus monkey populations in India in 23 districts in the states of Uttar Pradesh, Haryana, Himachal Pradesh, Jammu, Panjab, Rajasthan and Delhi, of the 372 groups sited by them 93 groups were between 21-30 animals in size with few groups totaling 71-90 individuals, thus average rhesus group size varied from 10- 50 monkeys, irrespective to the habitat occupied, but it was also noticed that larger sized groups inhabit temples and villages. The average range of group size reported by some authors considers with the investigations made in the present study. For the present study the monkey populations in Agra and adjacent areas have been classified into urban and rural

populations while Brown (1979) divided various rhesus groups into eight habitats on the basis of the degree of their interaction with human population as (1) Temple, (2) Urban, (3) Village, (4) Village & Pond, (5) Pond, (6) Roadside, (7) Canalside and (8) Forest and reported that the expanding human population is encroaching in the habitat of free moving rhesus monkey through proliferating buildings and farms, resulting in massive squeeze on rhesus habitat. Although the populations under the present study are free ranging but they relied on people for at least some of their foods. In the present study it was noted, that the urban monkey populations live in intimate contact with humans and face more problems as compared to their rural counterparts.

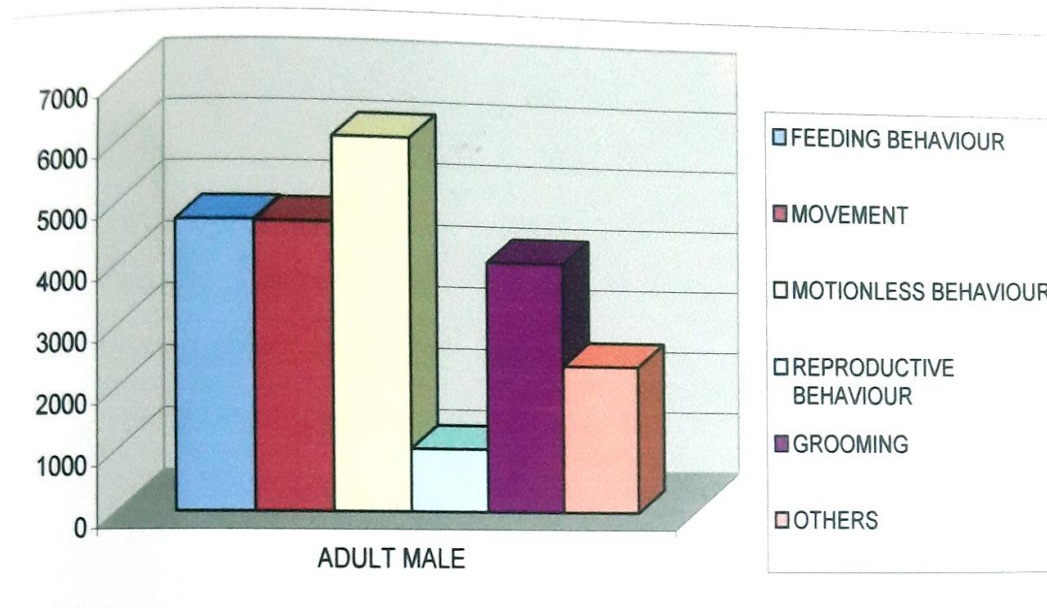


Fig. 1: Histogram showing time activity budget in different age group of *Macaca mulatta* (in minutes) at S.N. Medical College, Agra

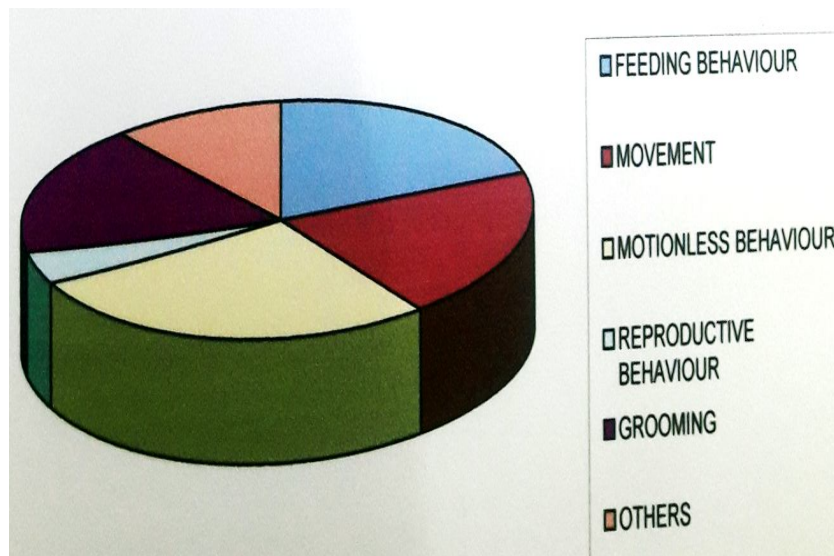


Fig. 2: Pie diagram showing time activity budget in different age group of *Macaca mulatta* (in %) at S.N. Medical College, Agra

**Table 1:** Time activity budget in different age group of *Macaca mulatta* (in minutes) at S.N. Medical College, Agra

Animal	Feeding Behaviour	Movement	Motionless Behaviour	Reproductive Behaviour	Grooming	Others
Adult male	4719.36	4696.32	6086.40	1032.96	4089.60	2415.36
Sub-adult male	5103.36	5011.12	5118.72	1278.72	3774.72	1797.12
Adult female	5955.84	4166.40	6163.20	906.24	4227.84	1620.48
Sub-adult female	5437.44	4733.92	4446.72	1585.92	3736.32	6535.68
Juvenile	3417.60	4972.80	3801.60	448.64	2158.08	7841.28
Infant	2188.80	3744.00	2438.40	418.56	1858.56	12391.68

**Table 2:** Time activity budget in different age group of *Macaca mulatta* (in %) at S.N. Medical College, Agra

Animal	Feeding Behaviour	Movement	Motionless Behaviour	Reproductive Behaviour	Grooming	Others
Adult male	20.48	20.38	26.41	4.48	17.75	10.48
Sub-adult male	22.15	21.75	22.21	5.55	16.38	7.80
Adult female	25.85	18.08	26.75	3.93	18.35	7.03
Sub-adult female	23.60	20.63	19.30	6.88	16.21	28.36
Juvenile	14.83	21.58	16.50	1.94	9.36	34.03
Infant	9.50	16.25	10.58	1.81	8.06	53.78

**Table 3:** Total time activity budget of all six animals *Macaca mulatta* at S.N. Medical College, Agra (in %)

Activity behaviours of all six animals	Time	Percentage
Feeding behavior	26822.40	19.40
Movement	27344.64	19.78
Motionless behavior	28055.04	20.29
Reproductive behavior	5671.04	4.10
Grooming	19845.12	14.35
Others	32601.60	23.58

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