

Various Behavior Performed By Rhesus Monkey, *Macaca mulatta* (Zimmermann, 1758)

¹Ajay Kumar, ²Tarsem Kumar, ³Girish Chopra and ⁴Anita Kadian

^{1,2,3}Department of Zoology (Wild life and animal behavior laboratory), Kurukshetra University, Kurukshetra-136119, Haryana (India)

⁴Forensic Science Laboratory (Biology division), Madhuban-132001, Haryana (India)

¹e-mail - ajayindorakuk@yahoo.com

Abstract: The present study was carried out from February, 2008 to July, 2008 to record various types of behavior among rhesus monkey, *Macaca mulatta* (Zimmermann, 1758) in Bir Sonty Reserve Forest, Haryana (India). Rhesus monkey is present in dominant number in Bir Sonty Reserve Forest. To study, behavioral among rhesus monkey direct contact method (Barwer, 1971) was followed. During periodic fortnightly visits (February, 2008 to July, 2008), rhesus macaques troops was monitored for performing different behavioral activity. During periodic visits seven number of behavior such as self-oriented active behavior (self manipulation, self grooming, auto erectisum), self-oriented passive behavior (passive sitting, lateral lying, dorsal lying, supine, standing), environmental oriented behavior (locomotion, environmental manipulation, self play), associated behavior (visual oriented, approach, withdraw, follow, proximity, grooming, manipulation, non specific contact, gross body contact), aggressive behavior (threat, chase, clasp, bite), sexual behavior (present, mount, thrust) and mother-infant behavior (embrace, cradle, restrain, retrieve, retrieve, cremace, reject, punish, ventral contact, nipple contact, venual contact, dorsal contact) were observed.

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1. Introduction

Rhesus monkey (*Macaca mulatta*) is an old world monkey belongs to family- Cercopithecidae. Rhesus monkey has a major role in biodiversity and in medical biological study such as surrogate mother, immunodeficiency disease, captive breeding, blood grouping and sequence of genome etc. (Zahn *et al.*, 2007). Rhesus monkey is distributed ubiquitously throughout mainland Asia, from Afghanistan to India and Thailand to Southern China, Bangladesh, Bhutan, Nepal and Pakistan (Ferris *et al.*, 1980; Groves, 2001; Smith and Mc Donough, 2005). In India, it is found in good number in peninsular India (Assam, Madhya Pradesh and West Bangal), north India (Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Rajasthan, Gujrat) and central India (Orissa, Bihar) (Seth *et al.*, 2001). In Haryana, rhesus monkey is found in different habitats including villages, road side forest, towns, temples and near agricultural fields etc. (Hunger, 2004). Rhesus macaques characterized by dusty brown in color with little to no fur on their reddish-pink faces. Male and female are sexually dimorphic. Male have more red color on rump than female resemble with their faces. Average body length for female 207.6 mm and for male 227.9 mm. Average weight for male is 7.70 kg and for female is 5.34 Kg (Fooden, 2000; Singh and Sinha 2004). Rhesus monkey is considered as omnivorous in its feeding habitats as it was observed

to fed on eggs, termites and moulds in addition to plants (Lindburg, 1971). In human influenced areas, they focus on fruits, flowers, leaves, seeds, gums, buds, clover, roots, bark and they supplement their food diet with termites, grasshopper, ants, beetles and mushrooms (Fooden, 2000; Wolfe, 2002). In some areas, rhesus macaque depends directly as well as indirectly, on parts of their diet from human activities (Richard *et al.*, 1989; Southwick and Siddiqi, 1994). Wolfe (1992), described about food given to the rhesus macaques in temples include bread, bananas, peanuts, seeds, fruits, vegetables, and assorted miscellaneous foods like ice creams and fried bread etc. Rhesus macaque troop are available in abundance in almost all the district of Haryana (Kumar, 1990). However, scanty information is available on different aspects of ecology and behavior of rhesus macaques in Haryana. Therefore, present research work was planned for study of behavioral study among rhesus monkey, *Macaca mulatta* (Zimmermann, 1758) in the Bir Sonty Reserve Forest of district Kurukshetra, Haryana (India).

2. Materials and Methods

Study area

To study behavioral among rhesus monkey, *Macaca mullatta*, Bir Sonty Reserve Forest was selected as study site. Bir Sonty Reserve Forest (30°

0' E latitude and 77° 1' N longitude) is located on Kurukshetra-Ladwa link road around 20 km. towards East of Kurukshetra and spread over an area of 474.50 acres. Bir Sonty Reserve Forest is an artificial forest and contains majority of the cultivated plants. The area has dark colored, alluvial soil rich in organic matter and having high water retention capacity (fig. 1). The dominant fauna of Bir Sonty Reserve Forest includes avian species (*Anas poecilorhyncha*, *Arcidotheres tristis*, *Bubulcus ibis*, *Centropus sinensis*, *Culumbia livia*, *corvus splendens*, *Dinopium savanense*, *Egretta garzetta*, *Himantopus himantopus*, *Meropus orietalis*, *Passer domesticus*, *Pristuculla krameri*, *Phalacrocorax niger*, *Pycnonotus cafer*, *Primia gracilis*, *Streptopelia senegalensis*, *Sturnus contra*, *Turdoides caudatus*,

Upipa epopus), mammalian species (*Boselaphus tragocamelus*, *Sus scrofa*, *Felis sp.*, *Macaca mulatta*, *Funambulus pennanti*) and dominant flora includes *Acacia nilotica*, *Albizia lebbek*, *Butea monosperma*, *Eucalyptus sp.*, *Dalbergia sissoo*, *Prosopus juliflora*, *Morus alba*, *Ficus bengalensis*, *Ficus glomerata*, *Syzygium cumini* and many species of herbs and shrubs (Dagar *et al.*, 2001)

To study, behavioral among rhesus monkey direct contact method (Barwer, 1971) was followed. During periodic fortnightly visits (February, 2008 to July, 2008), each individual of rhesus macaques troops was monitored for performing different behavioral activity. These activities noticed and collected data was later on statically analyzed.

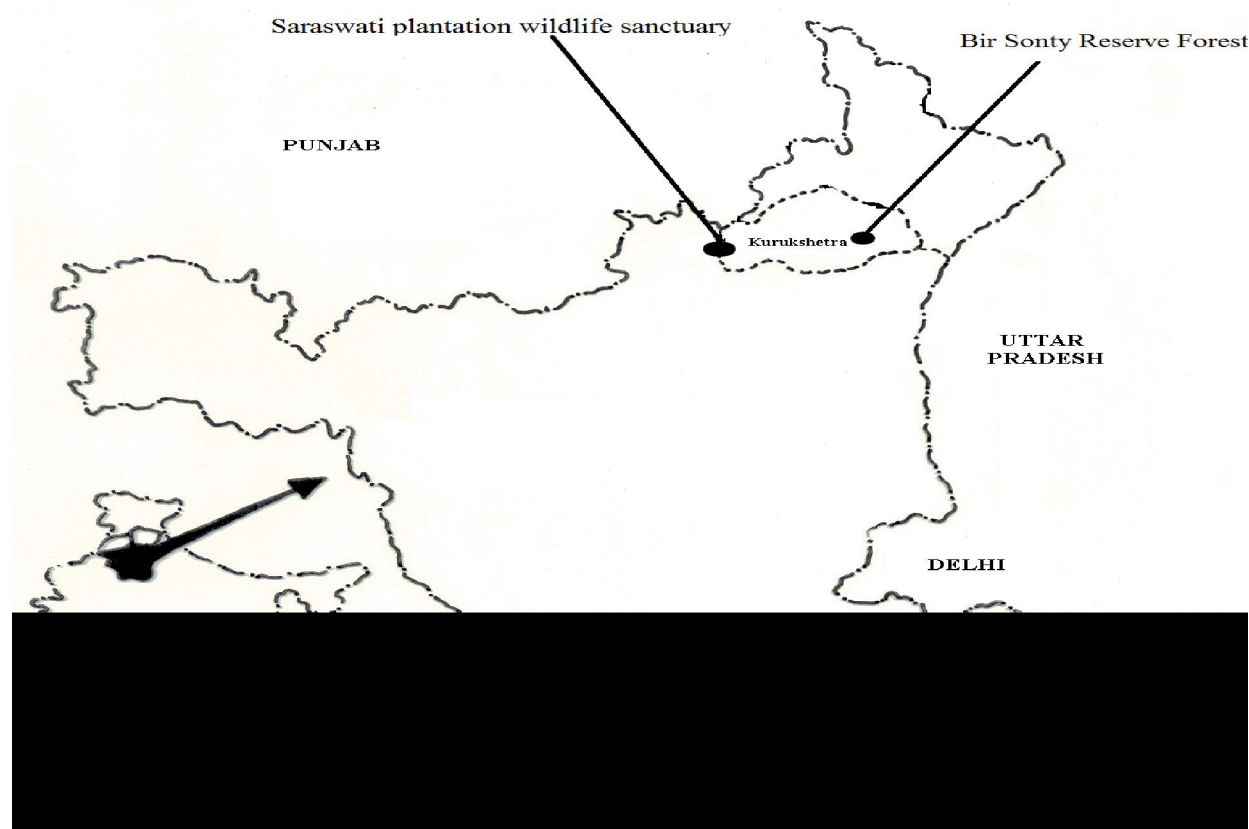


Fig. 1 Bir Sonty Reserve Forest, Haryana (India).

3. Results and Discussion

Lindberg (1971) different behavior in between mother-infant rhesus monkey such as retrieve, nipple contact, reject and ventral contact etc. He also studied infant development and its socialization. Swartz and Nottle (1985), observed daily routine among bonnet monkey, *Macaca radiata* started with mutual grooming, defecation and urination, mother infant behavior as well as reproductive behavior. Bernstein (1972) observed the

maximum frequencies of different activities viz., travel, feeding, play, sex and agonist at the time of sunset. He further observed such activities were also influenced by the temperature, weather and replacement of alpha male. Johnson (1986) observed the physical contact behavior in between mother and infant. He observed that these behavior affected by mother feeding time schedule. Guerra (1988) worked on maternal transport, locomotors development among infants. He observed the mother infant

behavior such as ventral carrying, dorsal carrying, approach, withdraw rejection of infant through mother after 60 days in their life period. Ester (1991) monitored aggressive behavior in rhesus monkey (males are more aggressive than female) and he observed behavior likes, fear, grimace (lips are retracted so that the teeth are shown, teeth are clenched together signal for decreases aggressive behavior), threat expression (starting with open mouth but teeth are covered) and tail erect (tail erect but perpendicular to the horizontal to body show aggressive confidence).

During present study was carried (from February, 2008 to July, 2008) individual of selected rhesus macaques troops was monitored for performing different behavioral activity in their home range. Seven number of behavior such as self-oriented active behavior (self manipulation, self grooming, auto erectism), self-oriented passive behavior (passive sitting, lateral lying, dorsal lying, supine, standing), environmental oriented behavior (locomotion, environmental manipulation, self play), associated behavior (visual oriented, approach, withdraw, follow, proximity, grooming, manipulation, non specific contact, gross body contact), aggressive behavior (threat, chase, clasp, bite), sexual behavior (present, mount, thrust) and mother-infant behavior (embrace, cradle, restrain, retrieve, retrieve cremace, reject, punish, ventral contact, nipple contact, venal contact, dorsal contact) (fig 1 and 2).

Self oriented active behavior includes self manipulation (any oral or/ and manual exploration, scratching or rubbing of body parts with inanimate object, other than self grooming and auto genital manipulation), self grooming (any discrete picking and spreading of own furs) and auto eroticism (any oral and manual exploration of genital area, clasp penis, penile erection or pressing or thrusting against inanimate object); self oriented passive behavior such as passive sitting (body weight on rumps with eyes open or closed), lateral lying (lying on the lateral side with eyes open or closed) dorsal lying (support on dorsal side, limb upward with eyes open or closed) supine (ventral side in contact of ground with eyes open or closed) and standing (common posture on quadrupedal support) was observed during periodic visits.

Similarly during periodic visits environmental oriented behavior namely, locomotion (any self induced change in physical location, sometimes bipedal), environmental manipulation (Any nasal, oral and manual exploration other than self and con-specific including eating and drinking and manipulation of excreta including ejaculatory substance. Interaction with human and other animals), self play (any rolling, repetitive climbing, jumping,

running play with inanimate object other than co specifics); associated behavior i.e., visual orientation (prolonged visual attention toward other animal recorded only visual orientation), approach (specially oriented body movement of at least one body length or more toward other animals), withdraw (moving away in deliberate manner from proximal distance (a meters space) from other animals during the course of an ongoing social interaction), follow (locomotion with other animals proximal space), proximity (in any posture with in meters space of other animals without making contact), grooming (discrete picking of fur attend or spreading of another animal), manipulation (any nasal, oral and manual exploration of another animal, excluding aggressive and sexual handling), non specific contact (any body contact with other animal not covering larger portion of body), gross body contact (larger area of body surface in contact of another animal) and various aggressive behavior such as threat (a varied facial communicating pattern, which may include, opening of the mouth to expose only the lower teeth, thrusting the head forward, flatting the year against the head, retracting brow, barking, body is generally held stiff and upright and thrust forward), chase (vigorous following of withdraw while showing repeated threats and invariable attacks on the opponent upon capture), clasp (any brief nip, cuff, push, pull with closure of hand on the fur, skin or any part of body) and bite (common use) were observed.

Mother infant behavior included embrace (encompassing or partially encompassing the body of the Infant with one or both arms), cradle (without encompassing. Gross body contact of infant in the lap), restrain (actively preventing the infant from breaking physical contact), retrieve (bringing the infant in to ventral contact), cremace (facial expression involving wide retraction of the lips in a grim and intermittent smacking of the lips), reject (termination or active avoidance of contact with the infant), punish (any brief nip, cuff or hair pulling directed toward the infant), ventral contact (gross body contact of the infant with ventral surface of the mother), nipple contact (oral contact with mother's nipple), ventral contact (mother in locomotion with infant in ventral contact) and dorsal carrying (mother in locomotion with infant on dorsal side) and sexual behavior i.e., present (standing on all fours exposing hind quarter and tail bending side ways and may be appropriate or in appropriate), mount (hand on others hips, ankle clasp and may be appropriate or in appropriate) and thrust (piston like pelvis movement with genital alignment may be inappropriate also) were also observed in rhesus monkey, *Macaca mulatta* troops in Bir Sonty Reserve Forest.

(a)

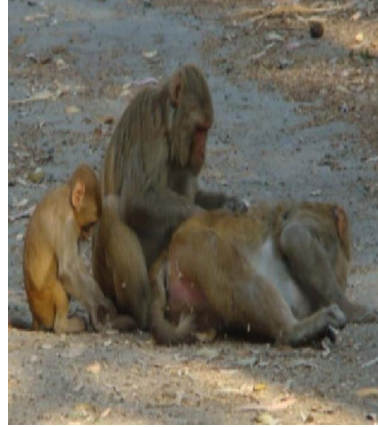
(b)

(c)

Fig. 2 Behavioral performed by rhesus monkey, *Macaca mulatta* in their home range.



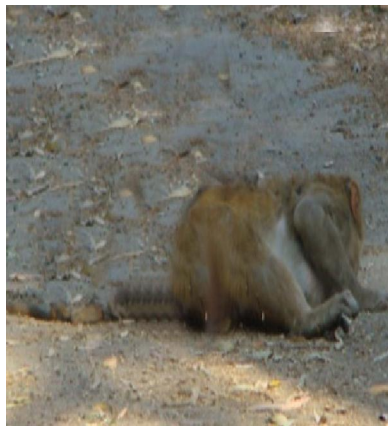
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(b)



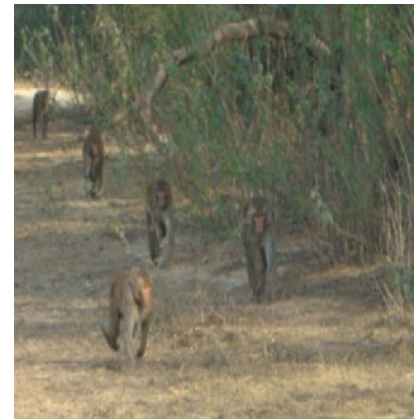
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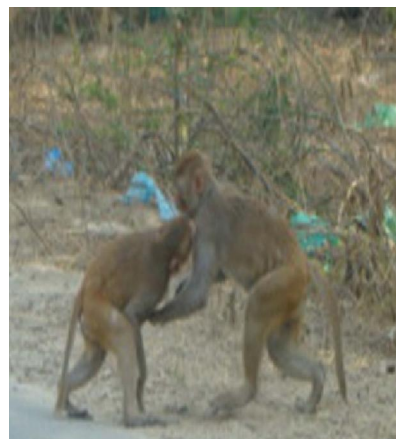
(e)



(f)



(g)



(h)

(i)

Fig. 3 Behavioral performed by macaques, (a) self manipulation behavior, (b) grooming behavior, (c) self oriented passive behavior, (d) self oriented lateral sitting behavior, (e) self play behavior, (f) visual oriented associated behavior, (g) threat aggressive behavior, (h) clasp aggressive behavior and (i) thrust reproductive behavior.

Correspondence to:

Ajay kumar
Department of Zoology, Kurukshetra University,
Kurukshetra-136119, (Haryana) India
Telephone: 01282-320043
Cellular phone: +91-9813077684
E-mail: ajayindorakuk@yahoo.com

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