



Census of rhesus macaque, *Macaca mulatta* in Chitrakoot, India

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Abstract

Present paper deals with the census study were conducted from March 2009 to February 2011 at twenty five sites of Chitrakoot. There was 1811 rhesus macaque were reckoned from selected sites. The highest population were noted on Sati anusuiya temple and lowest count on Bihari mandir. Non-human primates are good indicator of ecosystem health and also helpful in conservation strategies.

Keywords: rhesus macaque, population, census, habitat, Chitrakoot

Introduction

Rhesus macaque plays an important role in natural and the cultural environment. Chitrakoot is a famous holy place in India and the presence of Rhesus macaques in Chitrakoot area has been mentioned in ancient epic Ramayana. *Macaca mulatta* is one of the species of non-human primates, its commonly known as Rhesus macaque. Rhesus macaques belong to the family cercopithecidae of order primate and their fur colour is dusty brown to golden brown with light under parts. Gestation period as an average 165 days and female gives birth to a single one or rarely twins. Rhesus macaques are found in diverse habitats i.e. in deciduous, mixed-deciduous and temperate forest as well as in mangrove swamp and tropical forest usually at elevation of 2000 meter from sea level, but they have also seen at the elevation level of 4000 meter in china and north-eastern India. According to Sultana, R. (2012) [7]. Population study of Rhesus Macacques and investigation of their distribution is extremely important as they become part of the ecosystem. In chitrakoot area they found in temple, urban, roadside, riverside, habitat near human settlement and forest.

Study Area

The Study area is situated in the north region of satna district of M.P. and southern part of the Karwi district of Uttar Pradesh and its situated between 80°44' 48.042" to 80°54' 51.33" E latitude and 25°12' 13.0823" to 25°2' 19.952" N longitude. The average rainfall is 995.32 inch and maximum and minimum temperature is 45.44 and 10.67 on study durative time. The total area of study is 17.803.26 hectare, and all troops of rhesus macaques found on 161-304 meter elevation of study area.

Methodology

Data were collected on 25 free ranging Rhesus troops inhabiting temple, urban, pondside, roadside, riverside, village, and forest habitats of the Chitrakoot. Census of all troops was carried out by visual inspection of the entire area facilitated with the help of binoculars. At each site special consideration to made total count of Rhesus troop sizes and age-sex composition as per Seth, 1986 [5]. The Rhesus macaques were counted from early morning 5am to 8am and from 3pm to 6pm, in the evening. The counting were repeated for three times to reduce the error component.

Result

The entire rhesus population in study area was organised in twenty five troops. The present study comprise about 3,125 hours observation for behaviour of all troops. Observation was approximately equally distributed throughout the day. Rhesus macaques are dimorphic and different workers have used different age-sex classification. Individuals were classified into extensive age-sex classes based on physical characteristics. Present study adopted age-sex classification in *Macaca mulatta* by Seth, 1986 [5]; with little modification, and age-sex is classified into adult male, adult female, sub adult male, sub adult female, juvenile, infant and newborn live in multi-male, multi-female troops that have an average of 19 to 154 individuals, regardless of habitat type in Chitrakoot area. On an average 1811 rhesus were documented in 25 troops in Chitrakoot habitat. Among 1811 rhesus macaques, 14.01% were adult males 34.41% were adult females, 9.01% newborn, 14.62% were infants, 14.45% were juveniles, 5.56% were sub adult males, 7.93% were sub adult females recorded when we were finished my field study during winter.

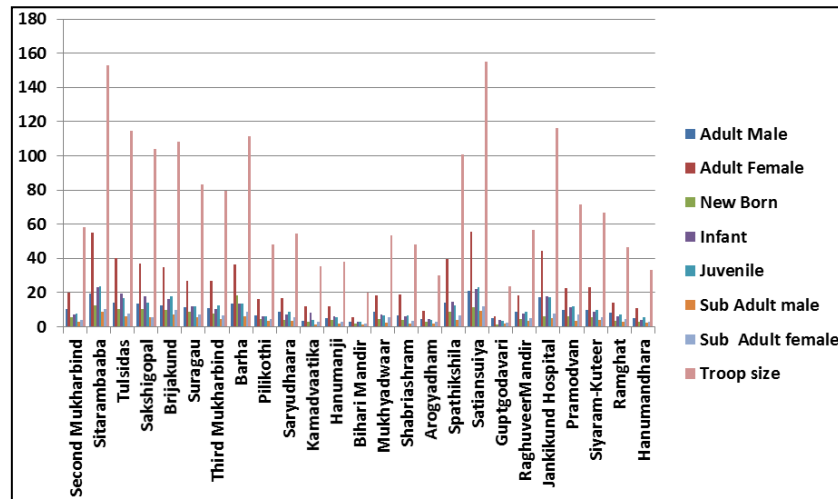


Fig 1: Site wise population distribution of *Macaca mulatta*

Table 1: Rhesus census average of various habitats of Chitrakoot forest range during March 2009 to February 2011

Study-site	Adult Male	Adult Female	New Born	Infant	Juvenile	Sub Adult male	Sub Adult female	Troop size
Second mukharbind	10.44	20.02	5.74	7.39	7.63	2.83	4.19	58.24
Sitarambaaba	19.25	55.22	12.66	22.89	23.83	8.75	10.39	152.99
Tulsidas	13.91	40.44	10.37	19.17	16.84	6.29	7.55	114.57
Sakshigopal	13.59	37.11	10.22	17.75	14.14	5.51	5.75	104.07
Brijakund	12.49	34.88	10.05	16.38	17.61	7.11	9.99	108.51
Suragau	11.22	27.05	8.65	12.10	11.72	5.44	6.97	83.15
Third Mukharbind	11.12	26.83	7.55	10.58	12.36	4.39	6.55	79.38
Barha	13.83	36.50	18.38	13.55	13.80	6.25	8.94	111.25
Pilikothi	6.80	16.41	4.36	5.91	6.25	3.47	4.72	47.92
Saryudhaara	8.91	16.77	4.00	7.11	8.75	3.55	5.61	54.70
Kamadvaatika	3.24	12.17	3.17	8.20	3.86	1.61	3.14	35.39
Hanumanji	5.22	12.16	4.22	6.16	5.39	1.83	3.16	38.14
Bihari Mandir	2.93	5.66	1.64	3.13	3.08	1.38	2.05	19.87
Mukhyadwaar	8.72	18.16	4.61	7.16	6.83	2.33	5.44	53.25
Shabriashram	6.80	19.03	4.00	6.02	6.91	2.02	3.52	48.33
Arogyadham	4.69	9.53	2.75	4.27	3.94	1.66	3.00	29.84
Spathikshila	14.26	39.73	9.01	14.75	12.50	3.86	6.57	100.68
Satiansuiya	21.29	55.83	11.64	22.10	23.13	9.36	11.76	155.11
Guptgodavari	5.05	5.99	1.61	3.83	3.33	1.72	2.31	23.84
RaghuveerMandir	8.87	18.14	4.41	7.89	8.64	3.60	5.33	56.88
Jankikund Hospital	17.05	44.55	6.36	18.08	17.08	5.24	7.69	116.05
Pramodvan	9.83	22.50	6.00	11.27	11.83	3.30	6.94	71.67
Siyaram-Kuteer	10.05	23.39	5.50	8.73	9.77	3.83	5.56	66.83
Ramghat	8.22	13.97	3.61	6.13	6.97	3.04	4.53	46.47
Hanumandhara	4.88	10.89	2.72	4.11	5.50	2.38	2.75	33.23

Discussion

Oinam and Saikia P. K., found that 270 rhesus macaques in four troops in Gauhati university campus in 2008. According to Seth *et al.* (2001) [6] group size and composition of rhesus macaques varied from 13 to 156 individuals. The number of female troop varied from 6 to 42. Sex ratio varies from 2.33 to 3.93, and Makwana in 1978 reported that six groups of rhesus macaques in the Asarori forest of Uttarakhand and the group sized varied from 6 to 90 individuals and the adult sex ratio was male to females 2.2 and 3.7. In present study it was found that 19 to 155 individuals of rhesus macaque in Chitrakoot while the adult ratio of male female is 1.67 and 2.87. In 1997 Pirta *et al.*, documented that 2,00,000 rhesus macaques and 1,20,000 hanuman langur in the 12 district of Himachal

Pradesh and complete counts were obtained for 43 rhesus and 22 langur group. Among the 275 individuals observed, 8% were adult males, 45% were adult females, 6% were sub-adult males and 4% constitute the immature. The adult male-female sex ratio was estimated as 1:5:64 females. But present observations it was found that 25 troops of rhesus macaca of Chitrakoot and total 1811 rhesus macaca was counted. In out of 1811 individuals total 14.01% were adult males 34.41% were adult females, 9.01% newborn, 14.62% were infants, 14.45% were juveniles, 5.56% were sub adult males, 7.93% were sub adult females. According to Minna & Jin-fun (2001) [2], most infants of formoson macaque were born mainly between april & june and 235 total births were recorded during 1995 to 1997, of which 2 pairs twins. But in present

study total 979.8 newborn recorded during 2 years study also found the twins of rhesus macaque in shabriashram in summer 2009 but they not survive and the cause of mortality was remaining unknown.

Conclusion

Chitrakoot is a land of rhesus macaques and forest diversity plays a significant role in their daily life. Rhesus macaca were mostly observed with different behaviour like feeding, fighting, resting, movement playing, sexual, agonistic and grooming activities. Biologically evolutionary and culturally, primates are closely related to human, and they are good indicators of general health of ecosystem and well being of corresponding.

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