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Comparison of Behavioural Responses of Toque Macaques Inhabiting Landscapes with Different Levels of Human Interferences

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Abstract

Toque macaque (*Macaca sinica*) is an endemic species represented by three subspecies *M. s. sinica*, *M. s. aurifrons* and *M. s. opisthomelas* in Sri Lanka. It has become a nuisance species in many landscapes due to the increased interactions with humans. Current study was conducted to determine the behaviour of two troops of *M. s. aurifrons* in a less human intervened landscape at Yagirala (LHIL): 6° 23' 07.71" N and 80° 9' 50.45" E and a moderately high human intervened landscape at Korathota (MHHIL): 6° 54' 51.12" N 80° 00' 05.59" E in the wet zone. It was hypothesised that behavioural responses depict the adaptability and wellbeing of macaques to the changing environment and level of human interferences. Photo-catalogues of Toque macaques were prepared using body morphology to identify focal individuals and troops they accompany. Behaviour patterns (Foraging, Locomotion, Comfort, Breeding and Agonistic) were studied from 0800 h-1100 h and 1400 h-1600 h using focal sampling method accomplishing a total observation time of =425 h (LHIL=215 h: Korathota=212 h) from March to December 2018. Major behaviours recorded were foraging, resting, grooming, aggression, locomotion, vigilance, elimination, thermoregulation, rutting-estrous, mating and parenting. At both sites toque macaques spent most of their activity budget on foraging (LHIL; Adults- 13.5%, Sub-adults- 10.4%, Juveniles- 11.0%: MHHIL; Adults- 10.1%, Sub-adults- 9.8%, Juveniles- 9.7%). There was no significant difference between the time spent on foraging at LHIL and MHHIL (Mann-Whitney-U-test $p<0.05$). The second predominant behavior shown by macaques was grooming (Adults-4.0%, Sub-adults-7.2%, Juveniles-6.8%) at LHIL while it was locomotion (Adults-8.1%, Sub-adults- 8.0%, Juveniles- 8.0%) at MHHIL. There was a significantly low locomotion by troop members at LHIL (83.3±15.01 min) than MHHIL (190.1±15.91 min) ($p<0.05$). At MHHIL vigilance behavior was more frequent (Adults-5.2%, Sub-adults-5.0%, Juveniles- 5.8%). Time spent on vigilance behavior at MHHIL (122.90±6.56 min) was significantly higher than LHIL (51.82±7.01 min) ($p<0.05$). Interestingly, a significantly high amount of time was devoted on comfort behavior pattern by the members of LHIL troop (Resting 70.7±26.99 min, Grooming 157.5±32.46 min) than that of the troop of MHHIL (Resting 50.9±9.08 min, Grooming 63.3±8091 min) ($p<0.05$). The results indicate that stress imposed by human interventions make the individuals spending more time on locomotion and vigilance behaviours, and less time on comfort behavior. Findings suggest that the wellbeing of Toque macaques is affected by the environment and the level of human intervention.

Keywords: Toque macaques, Behaviour, Human-intervened landscapes, Human interferences