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Observations on parturition and allomothering in wild capped langur (*Trachypithecus pileatus*)

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Abstract A birth during the day by a capped langur (*Trachypithecus pileatus* Blyth, 1843) was recorded at Pakhui Wildlife Sanctuary, Arunachal Pradesh, India. The birth took 43 min. Allomothering was observed 3 h after the birth. An average of 9% of daily active time was shared by four allomothers (three adults, one sub-adult) during the first 15 days of the infant's life. Total time allomothering was proportional to the age of the allomothers (241 min for oldest; 214 min for youngest).

Keywords Capped langur · Parturition · Post-partum · Neonate · Allomothering

Introduction

The capped langur, *Trachypithecus pileatus* (family Cercopithecidae; subfamily Colobinae) is distributed in northeastern India, western Myanmar, Bhutan and central and western Bangladesh (Mukharjee 1982; Stanford 1991; Srivastava 1999). The capped langur normally resides in one male–multifemale groups, although groups with more than one male also occur in the study area. Stanford (1991) reported female emigration in *T. pileatus* and we observed male replacement during the mating season.

The events reported here were observed during a long-term ecological study, of which 21 months were concentrated on reproductive behaviour in four groups of wild capped langur (*T. pileatus*). Two daytime births

were recorded, but only one in enough detail to report. We focus here on the different stages of parturition and post-partum behaviour of the mother and the other females in the group.

Methods

Fieldwork was conducted on the reproductive biology of the capped langur in the 862 km² Pakhui Wildlife Sanctuary from September 2001 to May 2003. The Pakhui Wildlife Sanctuary is located between 92°36'–93°09'E and 26°54'–27°16'N in East Kameng district of western Arunachal Pradesh, India. The general vegetation of the sanctuary is tropical, semi-evergreen (Champion and Seth 1968).

The group in which the birth was observed consisted of one adult male, four adult females, one subadult female and two juvenile offspring of the oldest two allomothers; the third adult allomother was pregnant. Appearance and the sanctuary's long-term records provided an age estimate for the females.

During the 21-month field study, 17 births were recorded. With two mating seasons, September to January and April to May, we estimated the average gestation period to be 200 days. Only 2 of the 17 births occurred during the daytime. One of these was observed from beginning to end. This event is described below, along with the behaviour of the mother and other group members during parturition and for 15 days post-partum. During the 15 days after the birth, the infant was the focal observation subject continuously from 06:00 to 17:00 hours each day, with all behaviours of the infant and animals interacting with it recorded every 5 min.

Results and discussion

Activity during parturition

On the day of parturition, 23 December 2001, we noted in the morning that the mother feeding irregularly, and

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less than usual. At 13:06 hours, she distanced herself from other group members by moving nearly 20 ft. away to another tree (*Ficus hispida*), which is a roosting tree. The mother showed signs of nervousness and lay down on the triangular junction in the middle canopy of the tree, nearly 35 min prior to parturition. At 13:45 hours she started calling very stridently while the rest of the group was feeding. The other group members looked at her for some time and resumed feeding. At 13:50 hours, other females of the group approached the still vocalizing female and gathered around her. They groomed her but she continued to vocalize in a distressed manner. At 14:28 hours, 43 min after she started calling, she stopped calling, and we saw her with the newborn infant.

During parturition, three adults and one subadult female accompanied the mother while the male sat looking approximately 10 ft. away. The juveniles, who were playing, did not pay attention to the mother. At 14:56 hours, when the subadult female changed her position, the mother was seen licking and grooming the newborn. Its colour was creamy white. Fresh drops of blood were found on the leaves of shrubs under the tree in which the birth occurred.

Post-parturition behaviour

Three hours after the birth, we saw the infant with the oldest allomother (AM1), who licked and groomed it for 6 min before it was retrieved by its mother.

At 3 h 17 min after the birth, the females dispersed, and the male approached the mother and new infant but not did not touch them. At 3 h 26 min, the second oldest allomother (AM2) handled the neonate for 8 min and then transferred it to the third adult allomother (AM3), who held it for 7 min before returning it to the mother. The subadult female (AM4) also tried to handle the neonate but the mother did not permit it on the day of parturition. The three adult allomothers handled the neonate for a total of 21 min on the day of parturition.

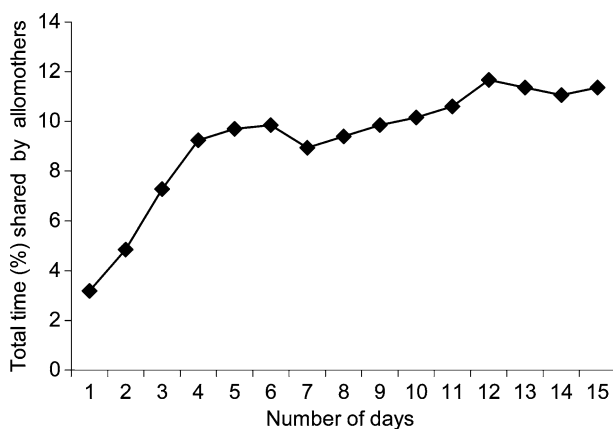


Fig. 1 Total daily time (%) that the new infant was allomothered across its first 15 days of life ($N=11$ h of observation per day)

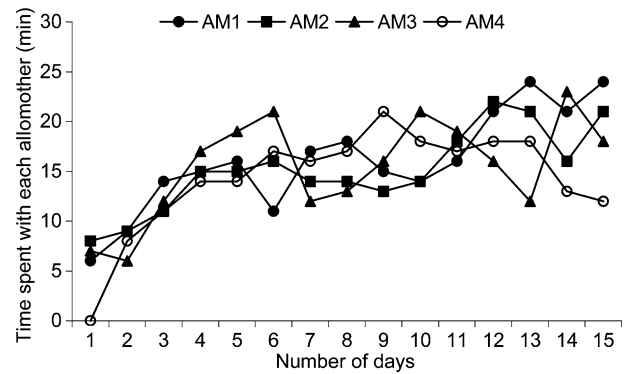


Fig. 2 Total daily time (min) that the new infant spent with each allomother across its first 15 days of life. ($N=11$ h of observation per day)

In other colobine species, allomothering was observed 6 h after infant birth for about 8 min in *P. entellus* (Agoramoorthy 1991) and 1 day after infant birth in *T. delacouri* and *T. francoisi hatinhensis* (Nadler 1997).

The new mother was not seen feeding after birth on the day of the birth.

The infant was allomothered for an average daily total of 9.2% of the day over its first 15 days, with the time increasing gradually over that period (Fig. 1). Time spent mothering was proportional to age of the allomothers, all of whom increased their time allomothering over the 15 days of observation post-partum (Fig. 2). In order of age, the allomothers spent a total of 241, 232, 227, and 214 min, respectively, holding the infant. The infant screamed when held by the allomothers, and after prolonged screaming, the mother took the infant back. The subadult female (AM4) was discouraged from allomothering.

During movement, the mother held the infant in a ventro-ventral position using one limb, and walked on three limbs for 10 days after parturition. To move between trees separated by some distance, the mother came down on the ground instead of jumping.

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