The Natural History Journal of Chulalongkorn University 5(2): 93-96, October 2005

Short Note

A New Record of Stump-tailed Macaques in Thailand and the Sympatry with Long-tailed Macaques

SUCHINDA MALAIVIJITNOND[1*] AND YUZURU HAMADA[2]

[1] Primate Research Unit, Department of Biology, Faculty of Science, Chulalongkorn University, Bangkok, 10330, THAILAND
[2] Section of Morphology, Department of Evolution and Phylogeny, Primate Research Institute, Kyoto University, Inuyama, Aichi 484, JAPAN

Stump-tailed macaques (*Macaca arctoides*) have been reported to be distributed primarily in the hilly areas in Southeast Asian continent, ranging from southeast of the Brahmaputra River, in eastern India, to northern Burma, and southern China and throughout Bangladesh, Thailand, Laos, Vietnam and Cambodia, south to the northernmost part of west Malaysia. Troop size varies from 10 to 60 individuals[1]. In the past, this species was common in Thailand. Many troops were found in the western[2] and southern parts of Thailand[1,3]. Presently, however, the species appears to be absent from most parts of Thailand. Treesucon[4] conducted a survey during July 1984 – July 1986 from the northernmost to the southernmost parts of Thailand. Of the 31 localities that he visited, 21 were inhabited by stump-tailed macaques, but they were observed at only four localities. The latter are located in the west (Huai Kha Khaeng and Thung Yai Wildlife Sanctuaries), central (Khao Tao Mo, Phetburi Province) and south (Khao Sok National Park) areas of Thailand. Aggimarangsee[5] later reported another troop of about 10 individuals in Phetchaburi Province, central Thailand, but did not identify the exact locality.

*Corresponding author:
Tel: (662) 218-5375
Fax: (662) 218-5386
E-mail: suchinda.m@chula.ac.th

Recently, we found a large troop of stump-tailed macaques at a monastery, Wat Tham Khao Daeng, Amphoe Ron Phibun, Nakhonsi-thammarat Province, southern Thailand (*ca.* 8°14'N, 99°52'E) that has not been previously described. The habitat is the mountainous area, Khao Daeng, close to the monastery, and near Khao Luang National Park where Boonratana[3] had reported the presence a troop of stump-tailed macaques. We visited Wat Tham Khao Daeng twice (May 2002 and May 2003) and in May 2002, 104 individuals were counted.

The pelage color in the Wat Tham Khao Daeng troop varied widely from reddish to light brown to dark brown to blackish in the sub-adult and adult of both sexes (Fig. 1). Scattered gray hairs were also observed in the old monkeys. Lekagul and McNeely[6] identified two subspecies of stump-tailed macaques in Thailand based on their pelage color and geography; *M. arctoides arctoides* and *M. a. melanota*. The subspecies *M. arctoides arctoides*, which is distributed in the mountains along the Cambodian-Thai border, has hair annulated red and black, yielding a brownish red hue. *M. arctoides melanota*, deployed throughout the remaining area of Thailand, has unannulated hair, blackish on the upper parts. Fooden[1], however, does not recognize subspecies within *M. arctoides*. He collected a blackish adult male and a brown adult male from the same troop at Khao Huai Dam, Trang Province. He, therefore, concluded that reddish or blackish coloration in stump-tailed macaques

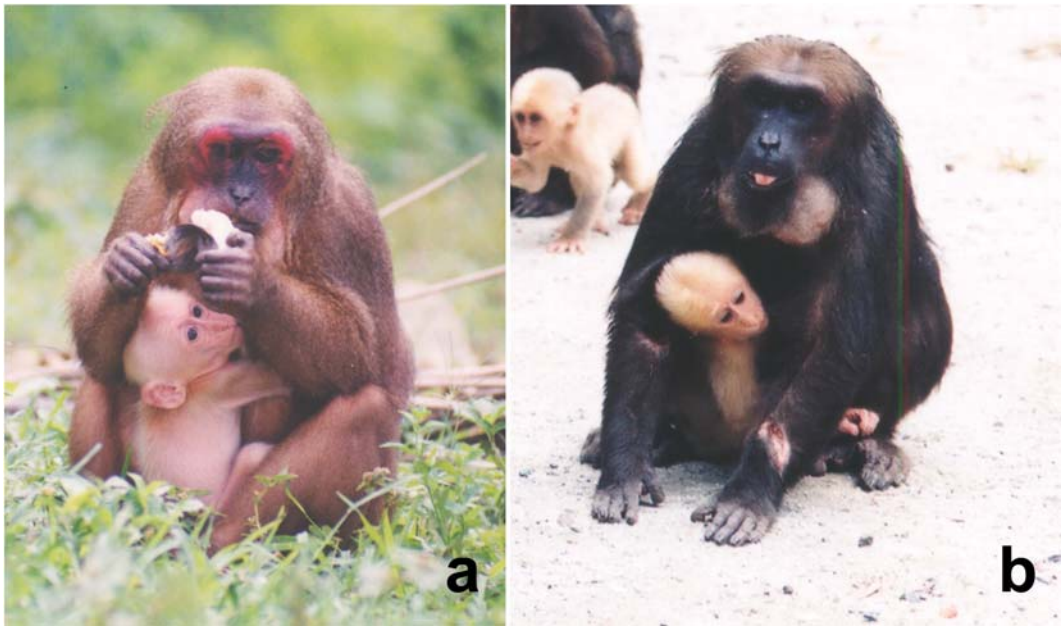

FIGURE 1. Variation of pelage and facial color in adult female stump-tailed macaques. (**a**) Whitish newborn infants with mothers of brown pelage and red face and (**b**) blackish pelage and blackish face.

varies on an individual basis, not geographic one. The variation in pelage color that we recently observed within the Wat Tham Khao Daeng troop supports Fooden's conclusion. In addition to pelage color in the Wat Tham Khao Daeng troop, the color of the facial skin also varied, ranging from pale pink to pink to red to dark red to blackish in both sexes (Fig. 1). All of the newborn infants had a pale pink face. Most of the older individuals had dark red or black facial skin, suggesting a developmental change during the process of aging.

During the second visit to Wat Tham Khao Daeng in May 2003, we counted 11 newborn infants with whitish pelage. Individuals with the gradation of darkish color from a small dorsal patch to coloration over the entire dorsal surface of the trunk were also found. The distribution of color change in pelage indicated the presence of older infants ranging from age 4-5 months to 1 year[1,7]. The age distribution infers that there is no breeding seasonality in this troop. It is still unknown whether or not the stump-tailed macaque is a seasonal breeder. Fooden and co-workers[7] reported that stump-tailed macaques in Yunnan, China mated throughout the year with a peak in October-November, and births in May-June. The reported mating peak of stump-tailed macaques in Thailand was also in September or October. Conversely, lack of a seasonal peak has been confirmed by a 2-year study of a colony housed in an open-air compound and also by several reports of birth patterns in stump-tailed macaques living under laboratory or free-ranging conditions[8]. A reddening and slight swelling of sexual skin was found in one sub-adult female, but we unable to determine whether or not swelling typifies adult females. Previous reports state that stump-tailed macaques do not show a conspicuous swelling of sexual skin during the menstrual cycle[1,6,9].

The stump-tailed macaques of the Wat Tham Khao Daeng troop fed at the same provisioning site at the foot of the mountain as did a troop of long-tailed macaques (*M. fascicularis*) (Fig. 2). The monks at the monastery reported that both troops of the macaques come down from the mountain almost daily and are provisioned by villagers at the monastery nearly everyday with bananas, papayas, water melons, mangoes, rambutans,

FIGURE 2. Food resource partitioning between stump-tailed (**a**) and long-tailed macaques (**b**) at provisioning site.

pineapples and coconuts. During our observation, the stump-tailed macaques came down first to the provisioning site and they were well habituated to humans. After taking food, they stayed at the site for approximately 1 hour, playing, grooming and mounting (heterosexual and homosexual between males), before returning to the mountain. Five minutes after the stump-tailed macaques had left the provisioning site, the long-tailed macaques came down to feed on the leftover foods. They took a different route down the mountain from that of the stump-tailed macaques. We counted 46 individuals in the troop. The long-tailed macaques were not habituated to humans; they ran away or climbed the nearest trees or slopes when approached. They spent about only 20 minutes at the provisioning site and immediately returned to the mountain after taking food.

It is clear that the stump-tailed macaques of Wat Tham Khao Daeng troop are sympatric with long-tailed macaques, and use the same provisioned food resource. Fooden[1,10] reported that stump-tailed macaques are sympatric with the four other species of macaques (*M. fascicularis*, *M. mulatta*, *M. assamensis* and *M. nemestrina leonina*) which occur in Thailand. He considered that the sympatry between stump-tailed and long-tailed macaques is facilitated by ecological habitat separation. Stump-tailed macaques are restricted to the broadleaf evergreen forest, while the long-tailed macaques inhabit the non-broadleaf evergreen forest[10]. There is, however, to our knowledge, no report about the level of interaction between stump-tailed and long-tailed macaques. Our observation suggests that there is no interspecific association between the two species at Wat Tham Khao Daeng, although they feed at the same site within a very short time interval of one another. It seems that in the provisioned situation long-tailed macaques avoid the stump-tailed macaques.

It would be interesting for future study to explore how the two macaque species occupy the same habitat. Do they select the same type and quantity of provisioned foods? For what kind of natural food do they forage in the forest? Are there other troops of these two species on the mountain? Is there any evidence of hybridization between the troops, given their proximity? If not, what factors contribute to reproductive isolation?

ACKNOWLEDGEMENTS

We thank Laura Newell-Morris, University of Washington, for her help and valuable comments. This work was supported by the Thailand Research Fund (Grant RSA/02/2545) and Chulalongkorn University (Grant for Primate Research Unit).

LITERATURE CITED

1. Fooden, J. 1990. The bear macaque, *Macaca arctoides*: a systemic review. J. Hum. Evol., 19: 607-686.

2. Fooden, J. 1971. Report on primates collected in western Thailand January-April, 1967. Fieldiana Zool., 59: 1-62.
3. Boonratana, R. 1988. Survey of mammals in South Thailand Parks. Nat. His. Bull. Siam. Soc., 36: 71-84.
4. Treesucon, U. 1988. A survey of stump-tailed macaques (*Macaca arctoides*) in Thailand. Nat. His. Bull. Siam. Soc., 36: 61-70.
5. Aggimarangsee, N. 1992. Survey for semi-tame colonies of macaques in Thailand. Nat. His. Bull. Siam. Soc., 40: 103-106
6. Lekagul, B. and McNeely, J.A. 1988. Mammals of Thailand. Darnsutha Press, Bangkok.
7. Fooden, J., Quan, G., Wang, Z. and Wang, Y. 1985. The stumptail macaques of China. Am. J. Primatol., 8: 11-30.
8. Smith, E.O. 1984. Non-seasonal breeding patterns in stumptail macaques (*Macaca arctoides*). Primates, 25: 117-122.
9. Napier, J.R. and Napier, P.H. 1967. A handbook of living primates. Academic Press, New York.
10. Fooden, J. 1982. Ecogeographic segregation of macaque species. Primates, 23: 574-579.

Received: 15 March 2005
Accepted: 7 June 2005