

MISCELLANEOUS NOTES

1. FURTHER NOTE ON SOME BEHAVIOURAL ASPECTS OF THE NORTHERN PIG-TAILED MACAQUE *MACACA NEMESTRINA LEONINA*ANWARUDDIN CHOUDHURY¹¹The Rhino Foundation for Nature in NE India, C/o The Assam Co. Ltd., Bamunimaidam, Guwahati 781 021, Assam, India.
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A detailed work on the ecology and behaviour of the northern Pig-tailed Macaque *Macaca nemestrina leonina* Linnaeus 1766, was published recently (Choudhury 2008). Additional recent information on the behavioural aspects of this relatively poorly documented primate is found in Choudhury (2009, 2010). Useful information on *leonina*, although relatively scanty, is found in Pocock (1931, 1939, 1941), McCann (1933), Fooden (1975), Choudhury (1988, 1989, 1993, 1997, 2003), and Feeroz *et al.* (1994). Groves (2001) had proposed full specific treatment for *leonina*. In this note, observations on some other aspects of behaviour observed during field works between February 1986 and May 2006, and which were not analysed before, have been presented.

The observations were carried out in Bherjan-Borajan-Podumoni Wildlife Sanctuary (27°25'-32' N; 95°19'-23' E) in Tinsukia district of eastern Assam, and Garampani and Nambor Wildlife Sanctuaries (26°23' N; 93°52' E) in Karbi Anglong district of central Assam. Bherjan-Borajan-Podumoni Wildlife Sanctuary is located on flat terrain (110-130 m above msl) and has three disjunct blocks covered by partially degraded tropical wet evergreen or rainforest and deciduous plantations. Garampani and Nambor Wildlife Sanctuaries are located on low undulating terrain (170-280 m above msl) and are covered by partially degraded tropical wet semi-evergreen rainforest.

General: The northern Pig-tailed Macaque is among the most arboreal of the macaques found in north-east India. They come down to the ground for crossing clearings and also for foraging, especially in degraded areas. Of the total 133 hours of observation in Bherjan, the macaques were observed for only 120 min on the ground, that too the lone males (only once a female with infant, and two immatures). The group may not come to the ground at all on many days while in forests with relatively good canopy cover (e.g., Bherjan). However, in the nearby Borajan, where the canopy was broken, the macaques were frequently observed on the ground, crossing roads and clear-felled patches. During the season of crop raid, especially after the harvest of paddy is over (in January), the macaques of Borajan were observed

to spend 38% of their diurnal time on the ground. In Nambor and Garampani, where canopy cover was almost closed, the macaques normally came down to cross over the National Highway that passes through the forest and feed on sugarcane left-over by wild elephants (Choudhury 1993, 2010). In Garampani, as much as 20% of their diurnal time was spent on the ground in February and March 1992.

Crop raiding reports are rare, however, in smaller pockets such as Borajan macaques raid paddy fields (usually after the harvest is over) and also in *jhum* (*jhum*=slash and burn shifting cultivation) pockets inside forests in Garo and Jaintia Hills of Meghalaya, to supplement their diet.

The macaques occupy the top storey (12 to 35 m in *Bombax*, *Dipterocarpus*, etc.) for roosting, basking and feeding. The understorey, especially the middle layer (2-10 m in *Bauhinia*, *Lagerstroemia*, *Albizzia*, bamboo, etc.) is used for feeding, resting and travelling. The lower branches of trees and lower shrubs were used for feeding. Activities on the forest floor included crossing of clearings, a little feeding but may be prolonged also in case of crop raiding, occasional drinking and play.

As a rule, the Pig-tailed Macaque is not very shy, however, in areas where it is hunted for food, it was extremely so (e.g., Nagaland) (Choudhury 2008).

Roosting: For roosting, in Bherjan and Podumoni forests, they preferred the higher branches of tall trees (>20 m; down to 16 m in partially degraded forest). The macaques arrive to roost fairly early (not just before dusk), 30-45 min before dusk, singly or in twos and threes, and take up their final roosting positions around sunset. While roosting, the macaques held the branches tightly, and remained in their positions throughout the night. They did not sleep in a tight cluster, but loosely dispersed in adjacent trees. The maximum distance observed between two extreme individuals of a roosting pig-tailed macaque group was about 100 m in Bherjan and Podumoni forests.

Vocalisation, communication and facial expressions: A variety of barks and calls are uttered by Pig-tailed macaques. The most frequent was medium to low-pitched *pno-pno* or *po-po*. This was uttered by almost all the individuals, one

after another or simultaneously when travelling from one location to another along trees, and sometimes during foraging and when any human being was seen nearby. During locomotion on the ground; however, they were more or less silent. The alpha male's alarm call was a harsh bark *hrr-hrr*, *argh* when the foraging members dispersed too far or when the female in estrous went out of sight. It also growls. The subadult and female alarm calls were *wheek*, *wheek*.

Quarrels and mock fights with grunts, especially among the sub-adults and juveniles, were not uncommon. Usually the adult male interfere uttering louder grunts to bring back silence. Overall, pig-tailed macaques are not silent animals and their presence can be easily detected due to a large group size and various vocalizations, and the sound of branch movements and twig-breaking when they travel.

The males also uttered *khek-khek* or *ghek-ghek* or *agh-agh* or *kheh-kheh* after dismounting from a copulation bout. The females either remain silent or make a low scream. Older females usually remain silent.

Pig-tailed macaques are very shy where they are hunted and utter a very distinctive *hoa*, *hooa*, *ho-a*, or *hua*, *hua* or *arr-huah*, *huah* and vanish immediately. Females and immatures made various 'squeals', 'screech', and 'screams'. Apart from vocalisations, pig-tailed macaques communicate by means of gestures (facial expressions), including look-threat, look away, grin, posture during locomotion, mounting gesture, presenting, freezing, touching with limbs, and possible tail expression.

Despite so many vocalizations, sometimes the groups could maintain effective silence such that their presence cannot be detected, especially when they were resting (not always as the young ones move about), or after fleeing owing to disturbance caused by humans. Immature males, adult females and juveniles grimaced with teeth visible when this researcher went within 3-5 m.

Sun basking: Such behaviour is mainly observed

during cool winter months. They exposed their ventrum and sides of body to the sun in a sitting posture on tree branches at 20+ m height. The duration of sun basking observed ranged from 14 to 35 min. In summer, there may not be any sun basking on some days. On summer mornings when sun basking was observed, the duration ranged from less than a minute to seven minutes. During basking the most common behaviour was sitting still, self-manipulation, grooming and play between the young ones.

Fall: Accidental falls were also often observed. On August 04, 1992, an alpha male fell from more than 20 m height when the branch he was sitting on gave away. A few seconds after the fall, he uttered 'aargh' and then vanished along the ground. On other occasions, a macaque jumped down 18-20 m while fleeing in Upper Dihing (west block) Reserved Forest, and two immatures fell from 20 m in Bherjan forests.

During rain: During drizzle, the adults mostly remained indifferent; however, on heavy rain, adults were seen sitting on branches with thick foliage, but the immature were observed playing and jumping from branch to branch.

This is probably the first time that these behavioural aspects of northern pig-tailed macaques have been published. The elusiveness of the macaque and poor visibility had its sway by wasting invaluable time in the field. Earlier observers who had studied form *nemestrina* also have similar comments (Bernstein 1967; Caldecott 1986). Although a dweller of dense forest, wherever degradation took place the macaque could adapt itself to the changed environment (e.g., Podumoni forests).

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2. EFFECT OF AILA STORM ON FLYING FOX *PTEROPUS GIGANTEUS GIGANTEUS* (BRUNNICH)

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During the course of studies on the bio-ecology of Flying Fox *Pteropus giganteus giganteus* (Brunnich) at Joteghanashyam area of Paschim Medinipur district of West Bengal, India, we took the opportunity to note the impact of Aila storm on a bat population occurring in the area. Our study programme was stimulated by a news broadcast on the radio and television announcing the approaching Aila storm. The senior author (SM) reached the site – a Silk Flower tree (*Albizia lebbek*) – which was inhabited about 800 *P.g. giganteus* individuals, at 08:00 hrs on May 25, 2009. The Silk Flower tree was 42 m tall with a canopy of 12 m diameter with well-developed branching system. The tree was situated on a hill inside a village. The weather was cloudy and it began drizzling at around 09:35 hrs. SM continued observing the bats from the ground. The ground below the tree canopy was clean. Aila appeared suddenly at 10:46 hrs. The wind speed was very high (110 km/hr, as per local Meteorological Station); unable to stand under the Silk Flower tree SM took shelter in a nearby house. The wind speed remained at about 110 km/hr for the first 10 minutes.

Thereafter, it decreased gradually and by 11:56 hrs the weather condition permitted SM to step out and visit the bat colony.

SM noticed a big and three small branches of the Silk Flower tree and 47 dead bats lying on the ground. Almost all the bats had blood oozing from the mouth. Forty-four bats were collected by the locals for feasting, while three were carried away by a mongoose (*Herpestes* sp.) into its burrow. The bats hanging from the tree had a blank look; in fact none of them left the tree to forage that night. However, the next evening (on May 26) they left the tree to forage.

In this case, 47 bats could not survive the severity of Aila storm. But it is not clear whether the speed of the wind or an attempt to seek a safe shelter dislodged them from the tree. Whatever the reason it is likely that once dislodged from the branch they failed to sustain themselves in the air because of the high speed of the wind, and therefore, fell to the ground. Thus, it is apparent that such natural calamities not only kill individuals but also create panic in the surviving individuals of *P.g. giganteus* for at least 24 hours.

3. FIRST RECORD OF LESSER FALSE VAMPIRE BAT (*MEGADERMA SPASMA* LINNAEUS, 1758) IN GIR NATIONAL PARK & SANCTUARY

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On May 10, 2008, during my research on Striped Hyena *Hyaena hyaena* in Gir National Park and Sanctuary, I and my field assistant were in the Chodawadi range of the Park. We were approaching Dungarphadi a permanent water body at Ardak river for searching active dens and other evidence of

Striped Hyena. There was no road or trail to Dungarphadi; it was a savannah type forest. After some time we started walking along a dry stream. After a few hundred metres walk, I located a sandy den (21° 08' 02.5" N; 70° 51' 08.7" E) and entered it cautiously. The den was an abandoned Indian



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