

# Notes on mating behaviour of two small carnivores in Bangladesh

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## Abstract

Small Asian Mongoose *Herpestes javanicus* is a common yet poorly documented species in Bangladesh. A pair was observed mating near a small bush on an island in the Buriganga River at 11h10 on 14 January 2014. Nine successive copulations were separated by about 20 to 50 seconds. Masked Palm Civet *Paguma larvata* is believed to be rare in Bangladesh and its behaviour is very poorly known. A pair up a tree in Satchari National Park at 07h43 on 25 April 2014 was observed copulating (two bouts) and its post-mating behaviour documented.

**Keywords:** breeding behaviour, copulation, *Herpestes auropunctatus*, *Herpestes javanicus*, Masked Palm Civet, *Paguma larvata*, Small Asian Mongoose

## Introduction

Direct observations of wild tropical Asian carnivores mating are rarely reported. This paper describes from Bangladesh single observations of mating in Small Asian Mongoose *Herpestes javanicus* and Masked Palm Civet *Paguma larvata*. Coordinates and approximate altitudes are derived from Google Earth.

## Small Asian Mongoose *Herpestes javanicus*

Small Asian Mongoose *Herpestes javanicus* sensu lato has a wide native distribution from Iran and Iraq through Pakistan and northern India to southern China and the Malay Peninsula, as well as Hainan and Java (Corbet & Hill 1992). In Bangladesh it is widely distributed, except in the interior of the Sundarbans mangrove forest, and is very common (Khan 2008). It uses various habitats, including village bushes and cultivation (Khan 2008). It is polygamous (Ewer 1973, Rood 1986). Although social structure is not known to vary between regions (Rood 1986), the species is extremely poorly studied in some areas, including in Bangladesh.

Along the Buriganga River on 14 January 2014 at 11h10, we observed about 12 Small Asian Mongooses on a small (around 3 ha) island (23°43'09.21"N, 90°21'27.86"E, elevation 13 feet) in the river. All 12 individuals seemed in a playful mood. They evidently belonged to one group because they were coming in and out of 5–6 holes in the soil under a bush. These holes presumably led to their den. The area, dominated by scrub, was about 60 m from the mainland. The weather was relatively cold (around 15 °C) and slightly foggy. Two of the mongooses came out from the bushes, one running behind the other. We observed the pair, from our boat, at a distance of about 15–20 m. They seemed to ignore our presence, even though we were 18 people talking with each other at the beginning of the event. When, after a minute, they started copulating we observed them silently. The pair copulated nine times, with bouts lasting (in succession) 21, 23, 17, 14, 26, 58, 20, 24 and 107 seconds. During copulations (Fig. 1), the female lay on her abdomen, facing her head forward and looking sidewise. The male did not obviously look around, but sometimes put its head on the female's dorsum. While copulating, the male tried to pull the female's abdomen upwards with its forelimbs. After each copulation, the male tried to maintain a distance of about

1 m from its mate, pushing the female away for about 20–50 seconds each time. Then the male approached the female to mount again. Both animals shook their bodies during this interval on four occasions. No aggressive behaviour, such as biting, was observed during the mating. We saw the pair run out of the bushes, mate in the open, then return to the bushes, but we do not know whether they also mated in the bushes before or after the observation. The observed sexual encounter lasted about 10–12 minutes, some 2–2½ m from the den.

During this time, a juvenile Mongoose was walking around, about ½ m, from the pair (Fig. 2). The juvenile sometimes tried to approach the female. The male chased the juvenile away if it got close to the pair while mating. It did approach the female closely during copulation intervals and the female, in return, entertained it affectionately. Perhaps the juvenile was an offspring of the female; it seemed to pose no threat to the mating pair.

These mongooses are sexually dimorphic in size, with males typically weighing almost 150% of females (Baldwin *et al.* 1952). In our observation the male was larger than the female. In the Northern Hemisphere, breeding females are found from the end of February until early September (Pearson & Baldwin 1953, Nellis & Everard 1983) and in the Southern Hemisphere from August to February (Gorman 1976). Khan



**Fig. 1.** Mating pair of Small Asian Mongooses *Herpestes javanicus*, Buriganga River, Bangladesh, 14 January 2014 (Photo: Omar Shahadat).



**Fig. 2.** Mating pair of Small Asian Mongooses *Herpestes javanicus* and juvenile, Buriganga River, Bangladesh, 14 January 2014. The juvenile approaching the pair (top) and affectionately received by the female during a copulation interval (bottom; Photos: Omar Shahadat).

(2008) mentioned that Small Asian Mongooses breed mainly from March to July in Bangladesh, but it is not clear whether 'breeding' includes the entire period of mating until departure of offspring or some portion thereof. This observation was, in January, slightly earlier than the stated periods. We could not trace any other information on mating of this species. However, recently Murali *et al.* (2012) observed a pair of Indian Grey Mongooses *H. edwardsii* mating: similar to the present observation, the pair mated in an open spot then disappeared into nearby bushes. That pair copulated fewer times but with longer intervals and bouts of copulation.

### Masked Palm Civet *Paguma larvata*

Masked Palm Civet *Paguma larvata* ranges widely from northern Pakistan to the Greater Sundas, including much of eastern and southern China (Corbet & Hill 1992). It inhabits various forest types and is partly arboreal and solitary (e.g. Rabinowitz 1991, Duckworth 1997, Grassman 1998, Than Zaw *et al.* 2008). Its reproduction, while well-studied in captivity (e.g. Jia *et al.* 2000, 2001, 2002a, 2002b) is poorly known in the wild, with such studies as there are apparently not discussing mating (e.g. Torii & Miyake 1986).

Satchari National Park is a semi-evergreen forest. On 11 April 2014 at 07h43, about 50 m from the Dhaka-Sylhet highway (at 24°07'36.80"N, 91°26'50.95"E; about 80 m asl), in deep forest with some tall trees, we were watching some birds on a tall tree. Suddenly, all birds flew from the tree at one time, and we heard a sound (*oow-oow-oow*) from there. The sound came from a mating pair of Masked Palm Civets on a branch approximately 15 m above ground. Hidden in a small bush about 30 m away from the civets, we observed the pair.

Copulation started on thin branches and the first bout lasted 103 seconds. The female then tried to escape and then the male pushed it away. The female moved down 1 m to a thicker branch followed by the male. After 41 seconds they started mating again, this bout lasting 3 minutes, 49 seconds. During copulation, the female seemed to concentrate on balance, trying to keep in the middle of the branch, while the male seemingly intent all the time on mating. The male kept its body over the female's dorsum, holding tightly by its forelimbs, and bit the skin of the female's neck (Fig. 3). The male continued thrusting the female with its body, with about 2-second intervals licking or biting the female's back and neck. The biting became aggressive late in copulation. At first the female seemed relaxed about the mating but by the end of the second copulation it seemed to try to repel the male by biting. After



**Fig. 3.** Mating pair of Masked Palm Civets *Paguma larvata*, Satchari National Park, Bangladesh, 11 April 2014. The pair mating (top) and the male biting the female during mating (bottom) (Photos: Nadim Parves).



**Fig. 4.** Male Masked Palm Civet *Paguma larvata* resting after copulation, Satchari National Park, Bangladesh, 11 April 2014 (Photo: Nadim Parves).

copulation, the male released the female and lay on the branch (Fig. 4). The male looked very tired and was licking its copulatory organ with its tongue. The female also seemed tired. After mating, it went to the branch where the mating began, and lay down there. Both male and female seemed very tired; within five minutes they fell asleep. During mating, the female evidently noticed us, but ignored us.

Masked Palm Civet is overwhelmingly nocturnal with occasional day-time activity (Rabinowitz 1991, Duckworth 1997, Grassman 1998, Than Zaw *et al.* 2008). However, this pair mated in the morning, about two hours after sunrise. The temperature was 32 °C and humidity was 74%. The related Common Palm Civet *Paradoxurus hermaphroditus* is also largely nocturnal, yet two observations of mating pairs also took place by day (Borah & Deka 2011; at 16h45 and 11h30–13h00), as did an apparent pre-copulatory chase (Timmins & Duckworth 2013; at 11h45). Incidental observations such as these are far more likely to be made by day than by night. This may be the reason why these records of mating in the predominantly nocturnal palm civets were all made by daylight: captive Masked Palm Civets mate commonly by night (Jia *et al.* 2002a).

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