

OBSERVATIONS ON THE DIURNAL BEHAVIOUR OF COMMON PALM CIVET
PARADOXURUS HERMAPHRODITUS PALLAS (CARNIVORA: VIVERRIDAE)
 IN NORTHEAST BANGLADESH¹

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¹Accepted June 19, 2021

First published: December 29, 2021 | doi: 10.17087/jbnhs/2021/v118/148755

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Common Palm Civet *Paradoxurus hermaphroditus* Pallas, 1777 (Carnivora: Viverridae) is a small carnivore widely distributed across South and Southeast Asia. This globally Least Concern species inhabits diverse habitats including evergreen and deciduous forests, plantations, well-wooded countryside, logged forests, and urban environments (Duckworth *et al.* 2016). In Bangladesh, the species occurs in almost all terrestrial habitats (IUCN Bangladesh 2015). It is solitary and largely arboreal, nocturnal, and sleeps during the day on trees or in dwellings such as houses and farm sheds, or on the ground in burrows (Nakashima *et al.* 2013; Spaan *et al.* 2014). Much attention has been devoted to explaining its nocturnal activity pattern, but knowledge on its diurnal activities is limited.

It is difficult to sight the species during the day as it prefers dense vegetation (Nakashima *et al.* 2013). Here, we report opportunistic observations on the diurnal activities of the species in Satchari National Park (SNP, 243 ha) and Lawachara National Park (LNP, 1,260 ha), in north-east Bangladesh, which are on the western edge of the Indo-Burma Biodiversity Hotspot (IUCN Bangladesh 2015). The vegetation in SNP and LNP is semi-evergreen, the terrain undulating and forested, with numerous streams. Altitude ranges between 10 and 80 m. The areas are subjected to various biotic pressures, such as agricultural expansion, human settlements, illegal logging, and plantations (IUCN Bangladesh 2015).

Observations on Common Palm Civet were based on chance encounters when we surveyed the five north-eastern forests of Bangladesh for the population of globally Endangered Phayre's Langur *Trachypithecus phayrei* Blyth, 1847, from mid-July 2017 to September 2019. The time, date, location, and activity data on Common Palm Civet were collected for each sighting. Behavioural activities were recorded following focal sampling method (Altmann 1974),

with one-minute scan intervals until the focal animal was out of sight. In addition, data were collected on height and substrate use by the species. Binoculars (8×42) were used for behavioural observations and sex identification of the civets, and camera with 55–300 lens for photography. Plant heights were estimated visually, and the diameter at breast height was measured with measuring tape.

In all, four observations were made on the diurnal activities of Common Palm Civet at LNP and SNP. The first two sightings lasted only one minute each. In the first sighting, on August 28, 2017 at 08:51 hrs, an individual was seen running across the palm-dominated forest floor of SNP, within *c.* 15 m distance from the observers, and finally it climbed over a palm tree top. The tree height was about 17 m. In the second instance, on October 02, 2017 at 14:58 hrs, an individual was seen crossing a busy highway into SNP. It traversed dense undergrowth before it went out of sight. The third sighting was on February 21, 2018 at 13:40 hrs by a local eco-tourist guide in a forest trail in SNP. An adult individual was observed sleeping on a medium sized branch of a fruiting *Ficus* sp. tree for about 15 minutes. The observer then left the place.

The last observation was of two individuals – an adult male and an adult female. Both were encountered eating figs *Ficus racemosa* on a trail in LNP on March 18, 2018 at 16:35 hrs (Fig. 1). The male was smaller than the female. They fed for 41 minutes (almost 50% of the observation time) in different branches of the fig tree. Both individuals were seen eating mature green figs (Fig. 1). While selecting the fruit, they spent more time in the medium sized branches (79%), less in the main trunk (9%). The adult female rested for three brief time periods during feeding, when the male continued to forage. In a total of 1 hr 15 mins of observation (16:35 to 17:59 hrs), they slept for 45 minutes. After concluding their feeding activities, they moved to a Sihor or



Fig. 1: Common Palm Civets (a) spotted in daylight; (b) feeding on figs at Lawachara National Park

Toothbrush tree *Streblus asper* to rest, which was about 25 m from the fig tree. The roosting tree was dense and not directly visible from the forest trail. We left the place after observing the final bout of rest for about 15 minutes. The roosting tree was flowering; its height was 17.3 m and diameter at breast height was 28.4 cm. The male took rest on a medium-sized branch at about 14.3 m above ground, whereas the female rested at about 14.8 m.

Common Palm Civets are omnivores that consume fruits as a major component of their diet (Jothish 2014). Because of their mainly frugivorous diet (mostly *Ficus* spp.), they are important seed dispersers (Spaan *et al.* 2014). They also intermittently consume small vertebrates and invertebrates (Jothish 2014). In the present observations, they were found feeding at 16:35 hrs under good sunlight. The observations support the findings of Rabinowitz (1991), who indicated that the palm civets can be active in early evening hours. Palm civets have been reported to exhibit occasional diurnal activities in Laos, Indonesia, and Thailand, where no significant activities were observed except travelling (Cheyne *et al.* 2010). However, diurnal feeding has not been reported earlier in civets. Brattstrom (1952) noted that diurnal activities of nocturnal animals could be linked with the function of their pituitary gland in relation to solar radiation, and sexual and other associated cycles. Thus, diurnal feeding might reflect a change in foraging behaviour due to increased food demand during pregnancy or lactation (Cheyne *et al.* 2010), and it may be speculated that in the present case, feeding activity was triggered by the female that could have been pregnant or with young pups.

To summarize, we suggest three possible reasons behind diurnal feeding in the Common Palm Civet: (a) absence of predators (except python) and hunting pressure, (b) chronic anthropogenic disturbance, and (c) regular habit or

a combination of these three factors. Hunting pressure and natural predation on Common Palm Civet is not well-reported in Satchari NP or in Lawachara NP. Disturbance and sound pollution by vehicular traffic and tourists entering into the forests are high, although these could preclude activity during the day. Contrarily, however, animals often get acclimatized to such disturbance and exhibit greater activity in spite of it (Samia *et al.* 2015). The diurnal feeding behaviour was observed in the late afternoon in LNP, when there were only a few visitors in the park. Further studies are required to determine if such diurnal activities are an unnoticed regular habit or not. We suggest studies to characterize behaviour and day-bed selection of the species, especially in these disturbed forests, to better understand patterns of activity in palm civets.

Studies on diurnal activity patterns in nocturnal animals are scarce. Our observations provide a preliminary inspection of the behaviour of a nocturnal animal in broad daylight. However, a detailed study would be insightful, especially regarding their ecological adaptation in disturbed landscapes.

ACKNOWLEDGEMENTS

This study was conducted under a project (ID: 23975-1) “Status and Conservation Initiative of Phayre’s Langur in Northeast Bangladesh”, funded by the Rufford Foundation, UK, and Sigma Xi, USA, to Tanvir Ahmed. Some field equipments were provided by Idea Wild, USA to Tanvir Ahmed. We acknowledge Mr Yadav Ghimirey and Mr Hasan A. Rahman for valuable comments on an earlier draft of the manuscript and Mr Daniel Wilcox for important suggestions. We thank the Bangladesh Forest Department for giving research permission (Letter No: 22.01.0000.101.23.2018.1432) and the Department of Zoology, Jagannath University, for facilitating the study.

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Recommended Citation

Hasan, Sabit, Tanvir Ahmed, Shimul Nath, Sajib Biswas & Sabir Bin Muzaffar (2021): Observations on the diurnal behaviour of Common Palm Civet *Paradoxurus hermaphroditus* Pallas (Carnivora: Viverridae) in Northeast Bangladesh. *J. Bombay Nat. Hist. Soc.* 118. doi: 10.17087/jbnhs/2021/v118/148755

