OCCURRENCE OF THE MALAY CIVET, VIVERRA TANGALUNGA
(MAMMALIA: CARNIVORA: VIVERRIDAE) IN SINGAPORE

Norman T-L. Lim1,2 and Ou Yang Xiuling2
1Wildlife, Fish, and Conservation Biology, University of California, Davis
One Shields Ave., Davis, California 95616, U.S.A.
2Department of Biological Sciences, National University of Singapore
14 Science Drive 4, Singapore 117543, Republic of Singapore
(Corresponding author: ntlim@ucdavis.edu)

ABSTRACT. — The occurrence of the Malay civet (Viverra tangalunga) in Singapore is confirmed based on an example photographed by a camera-trap in Jan. 2012, at the MacRitchie Reservoir forest, Central Catchment Nature Reserve. The possibility of it being an escapee from the Singapore Zoo and Night Safari is ruled out.

KEY WORDS. — Central Catchment Nature Reserve, MacRitchie Reservoir, Malay civet, scavenger

INTRODUCTION

The Malay civet, Viverra tangalunga Gray, is one of the two Viverra species found in the Singapore (Jennings & Veron, 2009). It is a medium-sized civet, with bold black markings on the whitish throat, and numerous black spots on the greyish upperparts. This species has a body weight of 3–7 kg, head–body length of 54–77.3 cm, and tail length of 26–39.5 cm, with individuals from Peninsular Malaysia significantly heavier than those from Sulawesi and Borneo (Jennings et al., 2010). It can be distinguished from the large Indian civet, Viverra zibetha by its smaller size and the presence of 10–15 black bands on the tail, as compared to fewer and broader bands on that of Viverra zibetha.

While there are seven specimens of Viverra zibetha collected from Singapore in the Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research (RMBR), at the National University of Singapore, unambiguous specimens of Viverra tangalunga from Singapore are, however, lacking. Cantor (1846) recorded two specimens of ‘Viverra tangalunga’ from Singapore. However, as Viverra tangalunga was formerly confused with the large spotted civet, Viverra megaspila, Chasen (1924) treated Cantor’s specimens as Viverra megaspila while noting that this can only be confirmed by examining Cantor’s specimens. Unfortunately, these two specimens could not be traced, and their identity remains in question (A. Jennings, in litt.). To the best of our knowledge, there is only one verified Viverra tangalunga specimen from Singapore. It is deposited at the Muséum National d’Histoire Naturelle in Paris, France, under catalogue number MNHN CG 1970-369. It was acquired by the museum in 1969 and registered in 1970. Originally labeled as ‘Viverra megaspila’, it was re-identified as Viverra tangalunga by Geraldine Veron (A. Jennings, in litt.). Apart from ‘Singapore’ printed on its label, the specimen does not bear other information, such as the precise location, collection date or identity of the collector.

There are a few unconfirmed sightings of Viverra tangalunga in Singapore. For instance, it was reported to be ‘quite common at Mandai track 16 before 1969’ (Anonymous, 1988: 14). Additionally, Viverra tangalunga was reported from Upper Seletar Reservoir in the early 1990s (Teo & Rajathurai, 1997), and was observed regularly foraging near Camp I on Pulau Tekong in Feb. 1991 (Yeo, 1991). However, all reports of Viverra tangalunga from Singapore are not supported by photographic evidence or written description that includes diagnostic characters. It is possible that these sightings could have referred to Viverra zibetha (e.g., Teo & Rajathurai, 1997). Owing to the lack of confirmed sightings, some authors (e.g., Yang et al., 1990; Baker & Lim, 2008) regard Viverra tangalunga as having an ‘indeterminate’ status in Singapore.

The present article confirms the occurrence of Viverra tangalunga in Singapore based on recent images captured by a camera trap in the Central Catchment Nature Reserve.

DETAILS OF REDISCOVERY

The rediscovery of Viverra tangalunga was made during camera-trapping for a study on the vertebrate scavengers in Singapore. Camera-traps (Reconyx HyperFire PC900, Wisconsin, U.S.A.) were deployed at 62 locations in the Central Catchment Nature Reserve and the Bukit Timah Nature Reserve from Sep. 2011 to Jan. 2012. All camera-traps were
baited with commercially-available carrion to attract scavengers and were left in the field for at least 10 days. The camera-traps rely on infrared illumination and do not emit visible flash, as the latter may startle animals and produce bias in results. The following configurations were used in the camera-traps: 24-hour activity, no delay, no quiet period, and trigger shot of five images in 5 s.

Out of the 62 sampling stations, only one of the stations at MacRitchie Reservoir forest, Central Catchment Nature Reserve, yielded *Viverra tangalunga* (Fig. 1). This particular station was established on 31 Dec. 2011. The individual first appeared at the setup on 4 Jan. 2012 at 2352 hours. It exhibited cautious behaviour and kept looking in the direction of the camera-trap before it began consuming the carrion on 5 Jan. 2012 at 0216 hours for 4 min. The individual was recorded visiting the station on five different nights (Table 1) before the camera-trap was retrieved on the morning of 10 Jan. 2012. From the images captured, it appeared that only one individual was present.

**DISCUSSION**

All activity of the *Viverra tangalunga* recorded by the camera-trap occurred during the night (1900–0659 hours; see Table 1). This nocturnal behaviour is consistent with radio-telemetry data on *Viverra tangalunga* from Borneo (Colón, 2002), Sulawesi (Jennings et al., 2006), and Peninsular Malaysia (Jennings et al., 2010).

The telemetry studies reported mean home range sizes (95% minimum convex polygons) of 71–143 ha, with substantial inter-gender range overlap (Colón, 2002; Jennings et al., 2006; Jennings et al., 2010). Jennings et al. (2010) also found that while tagged *Viverra tangalunga* were occasionally found in plantations near forests, the animals do not venture more than 600 m from the forest edge. Additionally, an ecological niche modelling by Jennings & Veron (2010) predicted that *Viverra tangalunga* occurs primarily in evergreen forests. Such information on the basic ecology of *Viverra tangalunga* suggests that the Central Catchment Nature Reserve, at approximately 2,000 ha, may be a suitable habitat for the species.

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Fig. 1. A camera-trap image of *Viverra tangalunga* at MacRitchie Reservoir forest, Central Catchment Nature Reserve. Note the diagnostic narrow black bands on the tail.
As the Night Safari exhibits *Viverra tangalunga*, we ran a check with Wildlife Reserves Singapore and it was found that all animals were accounted for and there has not been any *Viverra tangalunga* escapee for the past 15 years. Additionally, the animal exhibited cautious behaviour, characteristic of wild animals, during the initial 2 h 24 min before finally consuming the carrion. Therefore, we rule out the possibility that the individual captured on the camera-trap had escaped from the Night Safari.

Given that *Viverra tangalunga* is a common scavenger species in neighbouring countries (pers. obs.), it is surprising that the extensive survey efforts in the past and in this study yielded only one individual. Nevertheless, we recommend that the long-term wildlife surveys be carried out in the forested areas of Singapore to better document the poorly studied nocturnal and arboreal wildlife.

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**LITERATURE CITED**


