

An extension of the known range of Brown Mongoose *Urva fuscus* in Southern India

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Abstract

The Brown Mongoose *Urva fuscus* is a cryptic species restricted in India to the Western Ghats. Previous Indian records of this species are from the southern parts of the Western Ghats, in Karnataka, Kerala and Tamil Nadu. This camera-trap record from Biligiri Rangaswamy Temple Tiger Reserve, which essentially forms the confluence between the Eastern and the Western Ghats, extends the species's known range by approximately 150.4 km to the south-east (102°E) of the previous record in Karnataka.

Keywords: Biligiri Rangaswamy Temple Tiger Reserve, camera-trapping, cryptic species, small carnivores, Western Ghats

Introduction

The Brown Mongoose *Urva fuscus* (see Patou *et al.* 2009) is a relatively large mongoose with uniformly dark blackish-brown fur and a thick, conical tail (Sreehari *et al.* 2013). It occurs in India and Sri Lanka and was introduced to the island of Viti Levu in Fiji (Veron *et al.* 2009, Mudappa & Jathanna 2015). Four subspecies of the Indian Brown Mongoose have been identified, of which *U. f. fusca* is the one that is found in India and its range is restricted to the Western Ghats (Corbet & Hill 1992; Kumara & Singh 2007; Mudappa *et al.* 2007).

From 1998 to 2015, the status of *U. fuscus* changed from Not Evaluated to Vulnerable to Least Concern in the IUCN Red List of Threatened Species mainly because there has been more information about its distribution and status (Mudappa & Jathanna 2015).

In India, the species inhabits evergreen forests, high altitude shola forests and adjoining tea and coffee plantations (Mudappa & Jathanna 2015). Even though its geographic range is restricted, locally it is quite common and even uses anthropogenic vegetation in the vicinity of human settlements (Chowdhury 2013, Mudappa *et al.* 2007, Mudappa 2013, Mudappa & Jathanna 2015). It tends to be nocturnal but has been observed to have significant daytime activity as well (Mudappa 2002, Kamath & Seshadri 2019). Generally, it is observed as

solitary individuals or in duos (Mudappa 2002, Veron *et al* 2009, Mudappa & Jathanna 2015). Information regarding the behaviour and ecology of the Brown Mongoose is still scarce.

The Brown Mongoose has been documented at 450–2000 m asl (Mudappa & Jathanna 2015). In the Western Ghats, in south India, it has been sighted and/or camera-trapped in protected areas of Kerala (Peppara Wildlife Sanctuary, Shendurney Wildlife Sanctuary, Periyar Tiger Reserve, Pampadum Shola National Park and Eravikulam National Park) and Anamalai and Kalakkad-Munduthurai Tiger Reserves in Tamil Nadu (Sreehari *et al.* 2016). The sightings in Karnataka state are all from the taluk of Virajpete in Kodagu District (Pocock 1942, Prater 1971, Jathanna 2014). This note documents the Brown Mongoose at a new location, outside its previously known range.

Study area

Biligiri Rangaswamy Temple (BRT) Tiger Reserve, which is in Chamarajanagar District in the south-eastern part of Karnataka, covers an area of 574.8 km² and forms a crucial link between the Eastern Ghats and the Western Ghats. It is part of a larger protected area network including Satyamangalam Tiger Reserve, Malai Mahadeshwara Wildlife Sanctuary, Cauvery Wildlife Sanctuary and other protected and reserved forest areas (Gubbi *et al.* 2017). The tiger reserve's altitude ranges between 620 to 1950 m asl and it receives an average of 650 mm (range 600 – 3000 mm) of rainfall in low-lying plateaus and 1990 mm in the higher altitudes (Lingaraja *et al.* 2017). The temperature ranges from 8°C to 16°C in winter and from 20°C to 38°C in summer (Kumara *et al.* 2012). Because of its altitudinal variations, BRT encompasses a variety of habitats, such as dry open scrub forests at lower elevations, deciduous forests in the hills at 500-1000 m asl, riparian and moist deciduous forest at mid-elevation and sholas and evergreen forests at higher elevations (Kumara & Rathnakumar 2010, Kumara *et al.* 2014).

Camera-trapped Brown Mongoose

Camera-traps (Panthera V4 and V6) were deployed between January and March 2018 to estimate the density and abundance of Leopard *Panthera pardus* in the reserve. A total of 209 stations was selected, where there was a perceived high probability to photo-capture Leopard individuals, covering different types of vegetation. At each station, two camera-traps were deployed at a height of approximately 40 cm from the ground level on either side of animal tracks and forest roads. The study area was divided into three blocks and each camera-trap was kept for 16 days in each block. All the camera-traps were active throughout the day and night. No baits or lure were used to attract any animal during the study. The total amount of effort was 3342 camera-trap days. The elevation of each camera-trap station was measured using a Garmin GPS (model GPSMAP 64s).

Brown Mongoose was photographed twice, at the same camera-trap station ($11^{\circ}53'25.08''\text{N}$, $77^{\circ}9'4.32''\text{E}$) at a measured elevation of 1171 m asl (Fig. 1) on 25 February 2018 at 19h17 and on 1 March 2018 at 18h58.

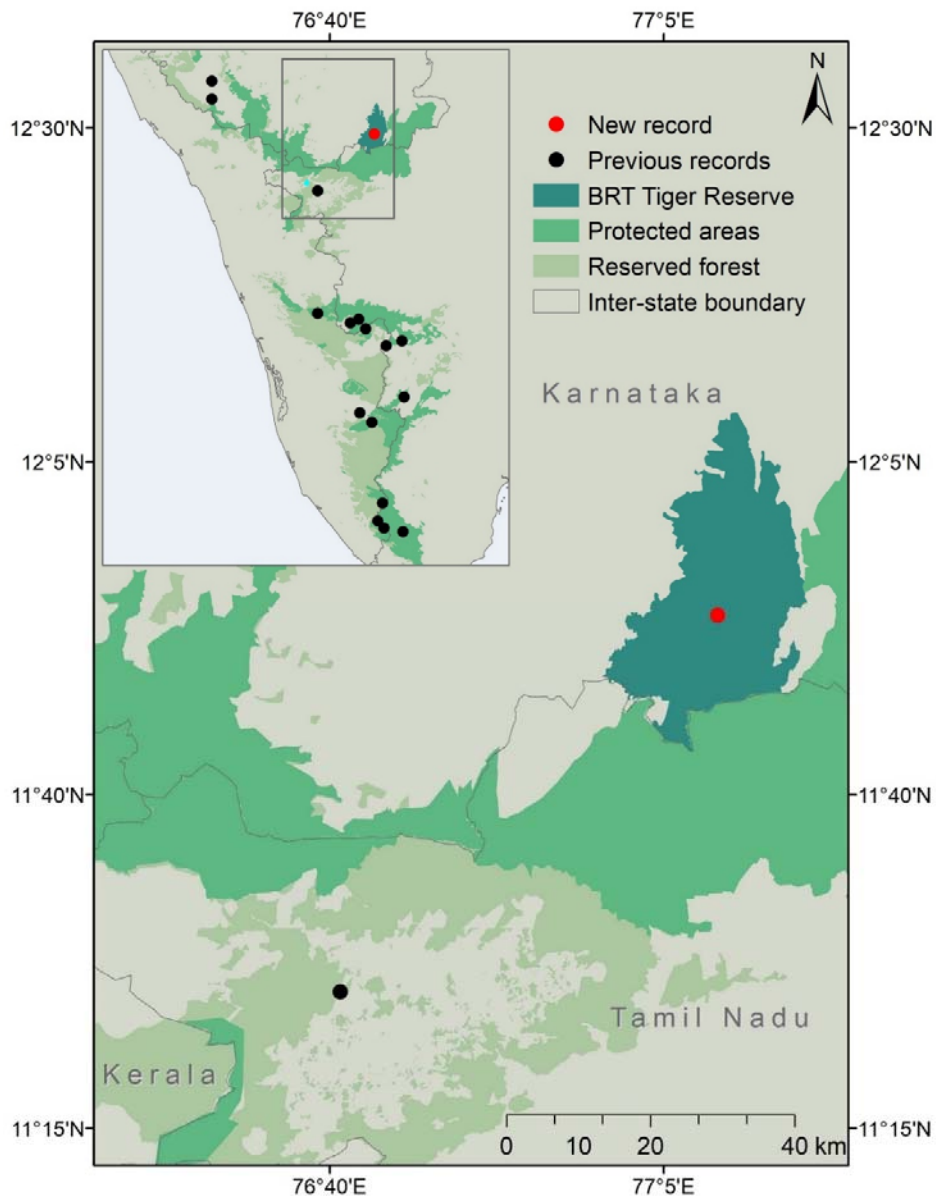


Fig 1. Previous records of Brown Mongoose *Herpestes fuscus* in the Western Ghats (Sreehari *et al.* 2016), and current record from Biligiri Rangaswamy Temple Tiger Reserve, Karnataka, India.

The individual(s) photographed had dark brown fur and a thick conical tail (Figs. 2, 3). The identification of the species was confirmed with the help of biologists working on small carnivores. The habitat of this location was characterized as moist deciduous forests (Fig. 4).

Discussion

The species was not recorded in the study area during previous studies done by Kumara *et al.* (2010, 2013, 2014) and Lingaraja *et al.* (2017). BRT Tiger Reserve is frequented by tourists and naturalists who carry out informal surveys covering observed species. The camera-trap station where *U. fuscus* was photo-captured is also on the regular tourism route and just 3.5 km away from the well-known K. Gudi camp but there has not been a previous record or observation from this area.



Fig. 2. Brown Mongoose *Urva fuscus* photo-captured on 25 February 2018 at Biligiri Rangaswamy Temple Tiger Reserve, Karnataka, India.



Fig. 3. Brown Mongoose *Urva fuscus* photo-captured on 1 March 2018 at Biligiri Rangaswamy Temple Tiger Reserve, Karnataka, India.

The habitat and elevation of the current Brown Mongoose record is well within the preference and range, respectively; however, the location lies outside the geographic range identified previously (Mudappa & Jathanna 2015). The current record is 150.4 km to the south-east (102°E) of the taluk of Virajpete in Kodagu District (12°10'48.00"N, 75°47'60.00"E), which is the nearest record in Karnataka (Pocock 1942) and 73.27 km to the north-east (44°E) of Ooty (11°25'12.00"N, 76°40'48.00"E), which is the closest in all prior records (Prater 1971).



Fig. 4. Habitat of the camera trap station where the Brown Mongoose *Urva fuscus* was photo-captured at Biligiri Rangaswamy Temple Tiger Reserve, Karnataka, India.

BRT has only 10.3% of the evergreen and semi-evergreen forests that are described as the preferred habitats of the Brown Mongoose (Ramesh 1989, Mudappa & Jathanna 2015); the current record in a moist deciduous habitat shows that the species also occurs in these habitats, at least occasionally. The current recorded habitat is not connected to areas that have previously documented the species within Karnataka. Considering that the record is only from one camera-trap station, there is a possibility that it could be a dispersing individual. Further surveys focused on camera-trapping small mammals and analyses must be conducted to determine whether there is a resident population of *U. fuscus* within the BRT Tiger Reserve. If a resident population is confirmed, taxonomic work to assess whether there is variation at the sub-species level would be helpful.

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