

Photographic records of the Ratel *Mellivora capensis* from the southern Indian state of Karnataka

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Abstract

Understanding about the occurrence and distribution of the Ratel *Mellivora capensis* from the Indian subcontinent is hindered by the animal's elusive nature. The first photographic evidence of Ratel for the southern Indian state of Karnataka comprises 41 camera-trap records from Cauvery Wildlife Sanctuary. During January–March 2014, Ratsels were detected in the sanctuary's different forest types broadly in proportion to camera-trapping effort therein. A wider occupancy survey, using a range of methods including camera-trapping, would help obtain a better understanding of the distribution of this cryptic species in Karnataka and neighbouring regions.

Keywords: camera-trapping, Cauvery Wildlife Sanctuary, Eastern Ghats, habitat use, Honey Badger

ಸಾರಾಂಶ

ಭರತಖಂಡದಲ್ಲಿ ತರಕರಡಿಯ (*Mellivora capensis*) ಇರುವಿಕೆ ಮತ್ತು ವಿಸ್ತರಣೆಯನ್ನು ತಿಳಿಯುವುದು ಈ ಪ್ರಾಣಿಯ ಗೂಢ ಸ್ವಭಾವದಿಂದಾಗಿ ಕಷ್ಟಸಾಧ್ಯವಾಗಿದೆ. ದಕ್ಷಿಣ ಭಾರತದ ಕರ್ನಾಟಕ ರಾಜ್ಯದಲ್ಲಿ ತರಕರಡಿಯ ಛಾಯಾಗ್ರಹಣ ಚಿತ್ರ ಸಾಕ್ಷಿಯು, ಮೊತ್ತ ಮೊದಲಿಗೆ, ಕಾವೇರಿ ವನ್ಯಜೀವಿಧಾಮದಲ್ಲಿ 41 ಕ್ಯಾಮೆರಾ ಟ್ರಾಪ್ ಚಿತ್ರಗಳೊಂದಿಗೆ ದಾಖಲಿಸಲ್ಪಟ್ಟಿದೆ. ತರಕರಡಿಗಳು 2014ರ ಜನವರಿ-ಮಾರ್ಚ್ ತಿಂಗಳಿನಲ್ಲಿ, ವನ್ಯಜೀವಿಧಾಮದ ವಿವಿಧ ರೀತಿಯ ಕಾಡುಗಳಲ್ಲಿ ಅಳವಡಿಸಿರುವ ಕ್ಯಾಮೆರಾ ಟ್ರಾಪ್‌ಗಳಲ್ಲಿ ಸ್ಥೂಲ ಪ್ರಮಾಣದಲ್ಲಿ ಪತ್ತೆಯಾಗಿವೆ. ಕ್ಯಾಮೆರಾ ಟ್ರಾಪಿಂಗ್‌ನೊಂದಿಗೆ ಇತರ ಕ್ರಮಗಳನ್ನೊಳಗೊಂಡು ವಿಸ್ತಾರವಾದ ಹಿಡುವಳಿಕೆ ಸಮೀಕ್ಷೆಯು, ಕರ್ನಾಟಕ ಮತ್ತು ನೆರೆಯ ಪ್ರದೇಶಗಳಲ್ಲಿ ಈ ಗೂಢ ಪ್ರಭೇದದ ಪ್ರಾಣಿಯ ವಿಸ್ತರಣೆ ಹಾಗೂ ಇತರ ವಿಷಯಗಳ ತಿಳವಳಿಕೆಗೆ ಸಹಾಯವಾಗಬಹುದು.

Introduction

The Ratel or Honey Badger *Mellivora capensis* (Mustelidae) is widespread across parts of Africa, the Arabian Peninsula, western Asia and the Indian peninsula (Begg *et al.* 2008). Owing to its elusive nature, there is very little reliable, current information on its status and distribution from the Indian subcontinent. In particular, there are rather few recent records from the southern half of India. Although it is globally listed as Least Concern under *The IUCN Red List of Threatened Species* (Begg *et al.* 2008), its perceived relative rarity in India means it receives the highest level of protection there and is listed under the Schedule I of the Wildlife (Protection) Act, 1972.

This note presents the first-ever photographic evidence of occurrence of Ratel, to the best of our knowledge, from the southern Indian state of Karnataka. Two earlier suggestions about its occurrence in the state come from southern Karnataka. Karanth (1986) reported a Ratel in Mysore Zoo in 1974, caught in the Srinivasapura area of Kolar district. The second, Kumara & Singh (2007), mentioned pre-1960s reports from Kolar district (no details given) and the rescue of a Ratel from a well near Sathanur in Bangalore Rural district in 2003. Their own extensive interview surveys yielded “no positive response for the occurrence of this species from any part of the State” (p. 160).

Study area

Cauvery Wildlife Sanctuary (1,027 km²; Cauvery WS) lies within 11°56'55"–12°24'36"N, 77°09'41"E–77°46'40"E (WGS 84, Fig 1). It is in the Ramanagara, Mandya and Chamarajana-gara districts of Karnataka along an eastern spur of the West-

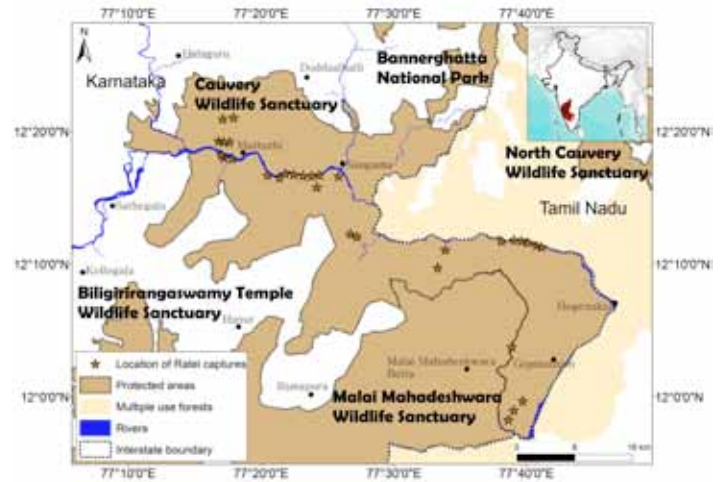


Fig. 1. Cauvery Wildlife Sanctuary, Karnataka, India, showing the location of records of Ratel *Mellivora capensis* and the adjoining land designations.

ern Ghats, and is considered to be a connection to the Eastern Ghats (WGEEP 2011). The vegetation in Cauvery WS is dominated by tropical dry thorn, dry deciduous and woodland savannah forests, but includes moist deciduous forests, riverine forests along the River Cauvery, and small patches of ‘shola’ (montane evergreen) forests (KFD 2004). The River Cauvery runs east to west through Cauvery WS, dividing it into two parts. The altitude of Cauvery WS ranges from 254 to 1,515 m asl. It receives a mean annual rainfall of 750–800 mm. The temperatures vary from 15 °C to 42 °C. There are 31 villages

and hamlets within Cauvery WS covering an area of about 66 km² (TOGCCCI 2001, RDPR 2011).

Methods

A survey within Cauvery WS between January and March 2014, part of a study to estimate Leopard *Panthera pardus* densities, deployed 65–72 pairs of Panthera V4 passive infrared camera-traps over approximately 961 km². These were active throughout the day and night on 11 sampling occasions (spanning 12–13 days) within each of the five forest ranges of Cauvery WS, logging a total camera-trapping effort of 3,652 trap-days across 332 camera-trap stations. Camera-trap stations were selected to maximise the likelihood of photographing Leopard. Thus, all camera-traps were placed along forest roads, which large cats use frequently for movement. The distance between camera-traps varied from 1.1 to 3.2 km. No baits or lures were used to attract animals to the camera-traps. Camera-traps were placed in all habitats within each forest range during the 12–13 day sampling period. We used a Pearson's Chi-squared test (Crawley 2007: 305) of independence on a contingency table (Table 1, columns 2 & 3) to test if Ratel encounter frequencies in different habitats were independent of the camera-trapping effort in them.

Results

Of the five forest ranges that comprise Cauvery WS, a Ratel was first camera-trapped in Halagur Range in January 2014. The species was subsequently recorded from Hanur, Kaudalli and Malai Mahadeshwara Hills Ranges, but has not yet been recorded from Sangama Range. Altitude of camera-trapped Ratels varied from 275 to 1,087 m asl. In all, Ratels were photographed, always by night (Figs 2–3), 41 times at 31 camera-trap stations. They were photographed twice at eight camera-trap stations and thrice at one, with successive records at any given station separated by at least 30 minutes. Of the 41 photographs, seven showed Ratels in duos. The other images each showed a single animal, although it cannot be concluded these animals were solitary: other individuals may have been pre-



Fig. 2. A duo of Ratels *Mellivora capensis* camera-trapped in Cauvery Wildlife Sanctuary, southern India, 3 March 2014 (Photo: Sanjay Gubbi/NCF/Panthera).



Fig. 3. In a rare picture, a Ratel *Mellivora capensis* encounters a Leopard *Panthera pardus* at a waterhole in Cauvery Wildlife Sanctuary, southern India, on 1 January 2014 (Photo: Karnataka Forest Department).

sent but not in positions to be recorded on the image. It was possible to identify sex of the animal in 19 photographs: males on 14 occasions and females on five.

Ratels were detected in all different forest types of the study area (scrub, dry deciduous and riverine) in proportion to the camera-trapping effort within them (Table 1, $X^2 = 3.13$, $df = 3$, $p = 0.37$) suggesting no evidence of habitat selectivity at the scale of sampling. However, further investigation would be required to determine if there truly is no selection: for one thing, camera-traps do not reliably indicate activity, so high encounter rates are possible in habitats of little value to a species but through which it must travel to reach its selected habitats.

Of the 17 small carnivore species expected to occur in Karnataka state (Kumara & Singh 2007), we camera-trapped and/or directly sighted eight in Cauvery WS: Jungle Cat *Felis chaus*, Rusty-spotted Cat *Prionailurus rubiginosus*, Common Palm Civet *Paradoxurus hermaphroditus*, Small Indian Civet *Viverricula indica*, Ruddy Mongoose *Herpestes smithii*, Indian Grey Mongoose *Herpestes edwardsii* and Smooth-coated Otter *Lutrogale perspicillata*. Pictures of the ratel, other mammals and Cauvery WS can be viewed at <https://www.youtube.com/watch?v=WRNibpOxeSs>.

Discussion

One Ratel image was obtained right on the southern boundary of Cauvery WS with Malai Mahadeshwara Hills Wildlife Sanctuary (MM Hills WS). Their similar ecological characteristics and habitat continuity mean that there is a strong likelihood of Ratel occurring in MM Hills WS, and a possibility that it might also occur in the eastern parts of Biligirirangaswamy Temple Tiger Reserve that adjoins MM Hills WS. Beyond Karnataka state, it is plausible, again based on habitat similarities, that Ratel also occurs in the adjoining state of Tamil Nadu within the neighbouring Sathyamangalam Tiger Reserve, North Cauvery Wildlife Sanctuary, and the reserved forests of Kestur, Bilikal, Mallahalli, Natrapalayam, Biligundlu, Voddappatti, Bevanurmalai and Badanavadi.

It was suggested that Ratel occurred at very low densities in Karnataka (Kumara & Singh 2007). However, this relatively

Table 1. Encounter rates of Ratel *Mellivora capensis* in different habitat types in Cauvery Wildlife Sanctuary, southern India, January–March 2014.

| 1 | 2 | 3 | 4 |
|-------------------------------------|--------------------------------|---------------------|---------------------------------------|
| Habitat type | Camera-trap effort (trap-days) | N° Ratel encounters | Ratel encounters/100 camera-trap-days |
| Scrub forest | 1,969 | 25 | 1.26 |
| Dry deciduous forest | 1,474 | 12 | 0.81 |
| Riverine forest | 198 | 4 | 2.02 |
| <i>Hardwickia binata</i> plantation | 11 | 0 | 0 |
| OVERALL | 3,652 | 41 | 1.12 |

frequent camera-trapping, with 41 photo-captures, suggests that it might not be all that uncommon locally. A wider occupancy survey, using a range of methods including camera-trapping, would help obtain a better understanding of the distribution of this cryptic species in Karnataka and neighbouring regions.

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