

Small carnivore records from Meru Betiri National Park, East Java

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<http://www.smallcarnivoreconservation.org>
ISSN 1019-5041

Abstract

A camera-trap survey was conducted from August to November 2017 in Meru Betiri National Park, East Java. Photographs of Binturong *Arctictis binturong* represent the most southern global record and extend the known range about 500 km farther east in Java than is currently portrayed. Photographs of Yellow-throated Marten *Martes flavigula* are the most eastern record of the endemic Javan subspecies *M. f. robinsoni*. Other small carnivore species recorded were the Javan Ferret Badger *Melogale orientalis*, Javan Mongoose *Herpestes javanicus*, Leopard Cat *Prionailurus bengalensis* and Common Palm Civet *Paradoxurus hermaphroditus*.

Keywords: Viverridae, Mustelidae, Herpestidae, Prionodontidae, tropical lowland forest, wildlife conservation, camera-trapping

Introduction

The Binturong *Arctictis binturong* reportedly has a distribution that extends from eastern Nepal and southern China, southwards to Sumatra, Borneo and western Java (Willcox *et al.* 2015). The Binturong is listed as Vulnerable in The IUCN Red List of Threatened Species because of population declines through hunting and habitat loss, and this species is now uncommon or rare throughout much of its distribution (Willcox *et al.* 2015). Records of Binturong in Java are rare; transect surveys recorded this species from only two localities in western Java, whereas four sites in East Java, including Meru Betiri National Park, failed to detect this species (Rode-Margono *et al.* 2014). Consequently, the distribution of Binturong on Java was considered to be restricted to western Java (Fig. 1; Willcox *et al.* 2015).

The Yellow-throated Marten *Martes flavigula* has a wide distribution that extends from Afghanistan to the Russian Far East, south to Sumatra, Borneo and parts of Java (Chutipong *et al.* 2016a). This species is listed as Least Concern, reflecting its evidently large population and its tolerance for a wide range of habitats, including degraded forests (Chutipong *et al.* 2016a). The Javan endemic subspecies *M. f. robinsoni* is clearly distinct from martens on Peninsular Malaysia, Borneo and Sumatra, and might even warrant classification as a distinct species (Schreiber *et al.* 1989). The status and distribution of the Javan endemic subspecies is poorly known, and Chutipong *et al.* (2016a) suggested that it might be threatened. Published records of the Yellow-throated Marten in Java are rare (e.g. Rode-Margono *et al.* 2014), but various unpublished records (e.g. J. A. Eaton in Chutipong *et al.* 2016a) suggest

it might be more common than previously thought. Regardless, given the past suggestions of rarity, it is important to document records of this subspecies. Although transect surveys failed to detect this subspecies at several sites throughout Java (Rode-Margono *et al.* 2014), its distribution reportedly includes most of western Java, with a single small isolated population in East Java around Bromo Tengger Semeru National Park (Fig. 1; Chutipong *et al.* 2016a).



Fig. 1. Meru Betiri National Park, Java, Indonesia (solid red square), shown with the current known range in the Sundaland of the Binturong *Arctictis binturong* (taken from Willcox *et al.* 2015) and Yellow-throated Marten *Martes flavigula* (taken from Chutipong *et al.* 2016a).

Camera-trap survey in Meru Betiri National Park: results and discussion

We conducted a camera-trap survey that recorded Binturong, Yellow-throated Marten and other small carnivores in Meru Betiri National Park (580 km²; 8°21' – 8°34'S, 113°37' – 113°58'E), East Java, from August to November 2017. A grid of 34 camera-trap stations spaced 2-3 km apart, in the eastern part of the park, covered about 100 km². All stations comprised two cameras (Panthera V6IR) attached to trees on opposite sides of the path (animal trails and ridgelines), approximately 40 cm above the ground and 2-5 m from the middle of the path. Cameras were stolen from eight stations; the remaining 26 stations all yielded photographs of wildlife.

Binturong was recorded at five out of 26 stations (19.2%; Fig. 2). These photographs represent the first of this species in Meru Betiri and the most southern record of Binturong within its global distribution, extending its known range about 500 km further east in Java than previously reported by Willcox *et al.* (2016; Fig. 1). Seidensticker & Suyono (1980) did not observe Binturong in Meru Betiri during a wildlife survey in 1976, although they reportedly found Binturong hair (identified by comparisons to a museum specimen) in scats of Leopard *Panthera pardus*. Nevertheless, our study provides the first verifiable records of Binturong from Meru Betiri. In 2018, a Binturong was reportedly photographed at another locality in East Java, the Kondang Merak forest near Balekambang Beach (Pryono 2018), about 150 km west of Meru Betiri, indicating this species may be more widespread in the forests of eastern Java than is currently recognised.

Photographs of the Yellow-throated Marten at four stations (15.4%; Fig. 2) are the first records from Meru Betiri; this species was not recorded during previous surveys in the park (Seidensticker & Suyono 1980, Rode-Margono *et al.* 2014). These photographs extend the known range of this species about 80 km farther east than previously reported (Fig. 1).



Fig. 2. Photographs of the Binturong *Arctictis binturong* (left; Meru Betiri, Java, 4 October 2017) and Yellow-throated Marten *Martes flavigula* (right; Meru Betiri, Java, 8 September 2017) obtained during a camera-trap survey of Meru Betiri National Park, Java, Indonesia, August to November 2017.

Javan Ferret Badger *Melogale orientalis* was recorded at one station. This species is endemic to Java and Bali and is listed as Least Concern, reflecting a presumably large population and its use of a wide variety of habitats, including agricultural landscapes (Duckworth *et al.* 2016, Wilianto & Wibisono 2017). This species has been recorded at sites throughout Java (Riffel 1991, Wilianto & Wibisono 2017), including Meru Betiri (Seidensticker & Suyono 1980), and its distribution is considered to include the entire island (Duckworth *et al.* 2016). Two photographs of Javan Mongoose *Herpestes javanicus* were obtained, and one individual was observed attacking a cobra *Naja* on a plantation near the boundary of Meru Betiri. The Javan Mongoose is widespread in Java (Chutipong *et al.* 2016b) and has been previously reported in Meru Betiri (Seidensticker & Suyono 1980). The Javan Mongoose and Javan Ferret Badger might have been more widespread in Meru Betiri than indicated by our camera-trap survey because the camera model we used (Panthera V6IR) was developed specifically to detect medium and large cats (Felidae); rat-sized carnivores might not always trigger the sensor on these cameras.

The other small carnivore species photographed in our survey were the Leopard Cat *Prionailurus bengalensis* and Common Palm Civet *Paradoxurus hermaphroditus*, which were recorded in 50.0% and 57.7% of the stations, respectively. Both species are classified as Least Concern in The IUCN Red List of Threatened Species, and both were previously recorded in Meru Betiri (Seidensticker & Suyono 1980). The only ground-dwelling small carnivore that was recorded in Meru Betiri by Seidensticker & Suyono (1980) that we did not record was the Small Indian Civet *Viverricula indica*. In fact, Seidensticker & Suyono

(1980) described this species as locally abundant in Meru Betiri, especially by water. Recent surveys across Java only detected the Small Indian Civet in an agricultural landscape in West Java (Rode-Margono *et al.* 2014), but not in forests, indicating this species is now rare in or absent from Javan forests. However, this species might be more abundant in agricultural and other open habitats in Java, similar to what has been found in Thailand (Chutipong *et al.* 2014).

Acknowledgements

We would like to thank Meru Betiri National Park for conducting the camera-trapping. We especially thank the park rangers, Nugroho Dri Atmojo, Jumadiawan, Fathoni Fajri Naim and Adi Sucipto, and local guides for help with the field work. We also thank J. W. Duckworth and E. Wilianto for helpful comments that improved the paper. Funding for the project was provided by Panthera.

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