

CAT

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news





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Original contributions and short notes about wild cats are welcome

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Borneo bay cat and other felids in a logging concession in Sarawak, Malaysian Borneo

Four notionally independent detections of the Borneo bay cat *Catopuma badia* were recorded from the Sela'an Linau Forest Management Unit, a logging concession located in the Upper Baram, Sarawak, Malaysian Borneo. This is only the second site in Sarawak outside a protected area where the species, listed as Endangered on the IUCN Red List and endemic to Borneo, has been recorded. Four of the five cat species known to occur in Borneo were recorded at this site from survey effort totalling 8,986 trap-nights. More information on the adaptability of these species to modified habitat is crucial for the formulation of effective conservation strategies in logging concessions as these areas could play a vital role in the conservation of wildlife in Sarawak.

The bay cat is endemic to Borneo. It is listed as Endangered under the IUCN Red List of Threatened Species Version 2013.2 (IUCN 2013) and is considered one of the rarest and least known felids in the world (Sunquist et al. 1994, Mohd-Azlan & Sanderson 2007). It has two colour phases, a reddish bay coat and blackish grey coat, the latter morph thought to be the rarer of the two (Kitchener et al. 2004, Mohd-Azlan & Sanderson, 2007). It has been recorded in a range of habitats including primary forest (e.g. Yasuda et al. 2007) and regenerating logged forest (e.g. Hearn 2003, Hon 2011), though not in monoculture plantations (McShea et al. 2009, Ross et al. 2010). Little is known about the ecology, population biology and principle threats of the bay

cat (Mohamed et al. 2009). In Sarawak, it has only been recorded from the protected areas of Mount Mulu National Park (Dinets 2003), Lanjak Entimau Wildlife Sanctuary (Mohd-Azlan et al. 2003) and Pulong Tao National Park (Brodie & Giordano 2012). In 2011, the species was recorded in the Anap Muput Forest Management Unit (FMU) (Hon 2011), a logging concession comprising mainly lowland dipterocarp forest. Here, we report images of the bay cat from the Sela'an Linau FMU, a logging concession located in northern Sarawak (Fig. 1). Previous research in this site spanning 54 months and totalling 5,252 camera trap-nights recorded 17 carnivore species but did not record bay cat presence (Mathai et al. 2010a,b). In Sarawak, this is only the second

record of the species outside a protected area.

Study area

The Sela'an Linau FMU, operated by Samling, is undulating in nature, with altitudes ranging from 300 m to 2,000 m a.s.l. It comprises mainly mixed dipterocarp forest (60%), some montane forest on higher ground (4%) and tropical heath forest on infertile soils (21%). Old and current swidden covers 15%. Prior to 2010, the Sela'an Linau FMU and Anap Muput FMU were the only logging concessions in Sarawak to undergo certification activities under the old Malaysian certification scheme for sustainable forest management. Only Anap Muput FMU has since been recertified under the revised Malaysian Timber Certification Scheme (MTCS) in 2013.

Methods

As part of a pilot study, three camera trap models, Reconyx Hyperfire HC500, Bushnell TrophyCam and Cuddeback Attack were placed in the Murud Kecil mountain range (covering the area approximately 3°15'-23'N/115°06'-08'E) from May 2012 till March 2013. This mountain range is declared Protected Zone (PZ) by the logging concessionaire; however, it is not gazetted under the Sarawak state government and has no legal protection. 43 cameras were installed on a stepwise basis at 21 points. Points were between 300 m to 18.35 km apart. Cameras were placed at animal trails and commercially available lures were used. For notionally independent detections, a criterion of 0.5 hours between images of conspecifics at the same point was used.

Results and discussion

Survey effort totalled 8,986 trap-nights, with effort varying between points. Four notionally independent detections of bay cat were obtained from two points, 350-600 m apart from the Reconyx Hyperfire HC500 camera model using Crayfish Oil as lure (Table 1). Survey effort required to first detection of bay cat was 3,566 trap-nights. Timings corroborate previous studies suggesting the bay cat is largely diurnal (Ross et al. 2010). Three other felid species were detected: Sunda clouded leopard *Neofelis diardi*, marbled cat *Pardofelis marmorata* and leopard cat *Prionailurus bengalensis*, with low detection rates (Supporting Online Material Table SOM T1). The only felid spe-

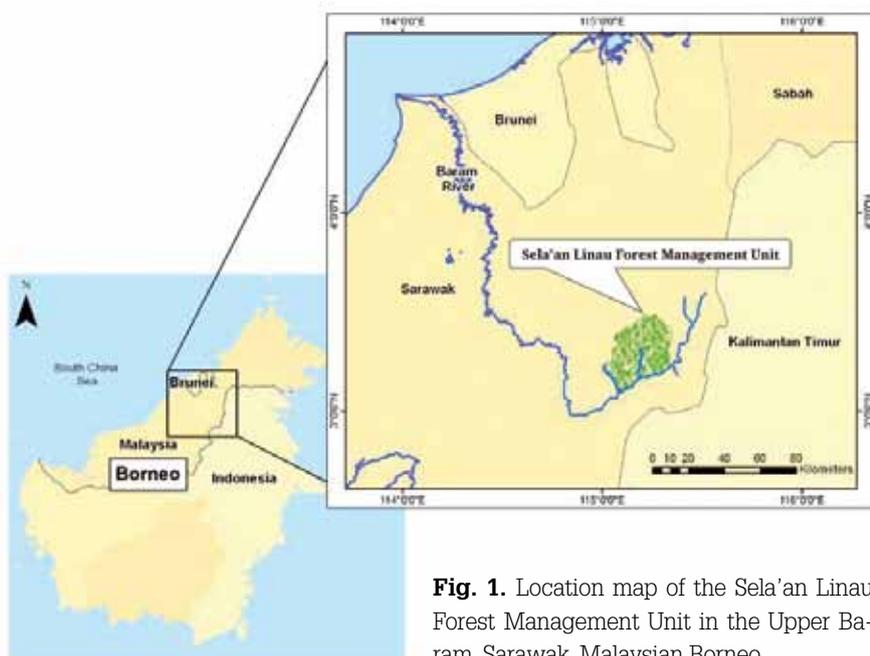


Fig. 1. Location map of the Sela'an Linau Forest Management Unit in the Upper Baram, Sarawak, Malaysian Borneo.



Fig. 2. Bay cat (grey morph) pictured on 16 February 2013 in the Protected Zone of the Sela'an Linau Forest Management Unit.

cies in Borneo not detected from this site was the flat-headed cat *Prionailurus planiceps*. Thought to be associated with large watercourses and coastal areas below 100 m (Wilting et al. 2010), this species is not expected to occur in the FMU.

Cameras which detected bay cat were set along ridges at elevations of 850-1,020 m, much higher than the detection in the Anap Muput FMU at 64 m (Hon 2011). Detection points were within 50 m of perennial streams and were characterized by large, mossy boulders with crevices between rocks, little understorey vegetation and closed canopy. Due to low light levels, three of the four detections were in black and white; one detection was in colour, showing an individual of the grey morph (Fig. 2). Points where bay cat was recorded also photographed leopard cat but not other felid species.

The Sela'an-Linau FMU is one of the few places with confirmed records of four of the five felid species known to occur in Borneo. More studies in logging concessions are needed to investigate the adaptability and tolerance of these species to anthropogenic changes in their habitat. Protected areas in Sarawak are too small and isolated from each other and it is therefore likely that the long-term survival of many carnivores will

depend on the sustainable management of the large, commercially used areas beyond the boundaries of protected areas, such as logging concessions.

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Supporting Online Material Table SOM T1 is available at www.catsg.org/catnews

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Supporting Online Material Table SOM T1

SOM T1. Felid species detected during this pilot study in the Sela'an Linau FMU, number of notionally independent detections, number of points detected (N = 21), range of spacing between points, elevation range of detections, time range of detections and survey effort required to first detection of the species.

Species	Number of independent detections	Number of points detected (N = 21)	Range of spacing between points	Elevation range of detections (m)	Time range of detections	Effort required to first detection (trap-nights)
Marbled Cat	1	1	-	1200	06h50 – 07h20	2,118
Bay Cat	4	2	350m – 600m	850 - 1020	07h50 – 17h40	3,566
Clouded leopard	6	4	300m – 15.8km	1000 - 1215	20h00 – 05h40	319
Leopard Cat	16	8	300m – 18km	800 - 1260	20h00 – 06h00; one detection at 11h08.	651