APPENDIX 3K

Poster displayed at the IUCN International Cat Conference

Felid abundance, activity and habitat use in a tropical forest in Sabah, Malaysian Borneo

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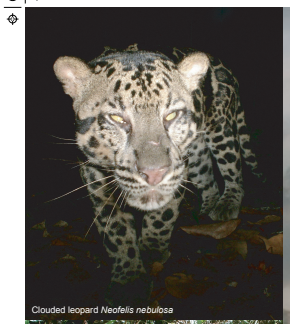
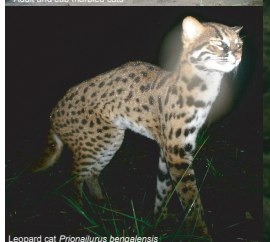

Clouded leopard *Neofelis nebulosa*

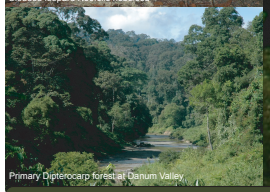

Marbled cat *Pardofelis marmorata*


Bay cat *Catopuma badia*


Adult and cub marbled cats

Leopard cat *Prionailurus bengalensis*


Clouded leopard *Neofelis nebulosa*

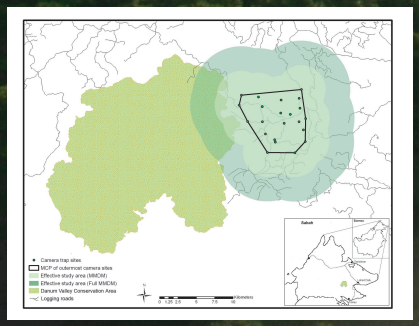

Primary Dipterocarp forest at Danum Valley

Introduction

Bornean tropical forest contains five little known felids. One is endangered, three threatened, and their presumed primary habitat is rapidly being lost and/or altered in the region. Knowledge regarding the ecology of these felids is urgently needed to facilitate the development of conservation management strategies. Here we present the initial results of our camera trapping efforts in Sabah, Malaysian Borneo, which is part of a long-term study of Bornean felid ecology.

Methods

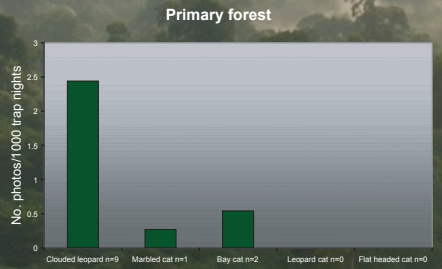
From November 2006 to September 2007 camera traps were deployed in the Danum Valley Conservation Area (primary Dipterocarp forest) and the adjacent Ulu Segama Forest Reserve (selectively logged Dipterocarp forest), Sabah. Cameras were located so as to maximise felid photo-capture probability. Photo-captures of wild cats were used to investigate felid relative abundances, activity patterns and habitat use. A capture-recapture sampling design was used to estimate clouded leopard abundance in the selectively logged forest.

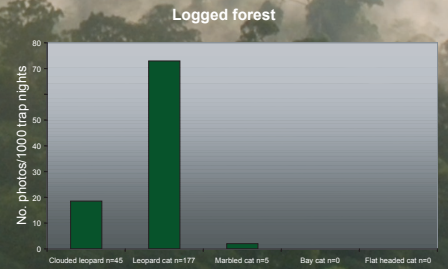


Study area, Sabah, Malaysian Borneo.

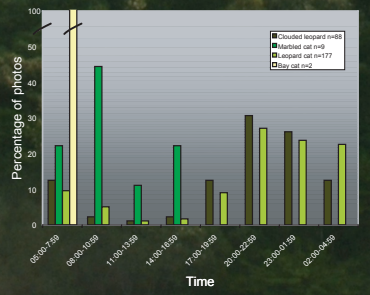
Results

1. A sampling effort of 3685 (primary) and 2425 (logged) camera-trap-nights revealed the presence of four felid species; flat-headed cats were not recorded. Photo-capture rates varied greatly between species and habitat.





2. Activity patterns derived from camera trap data suggest that clouded leopards and leopard cats exhibit primarily nocturnal activity, whereas marbled cats appear to be diurnal.



3. Clouded leopard density in selectively logged forest was estimated to be 6.44 (1.50) and 3.04 (0.71) individuals/100km^2 (+-SE) using MMDM and full MMDM methods respectively.

Capture probability[a]	Population[b] (+- SE)	95% Confidence interval	Method used to estimate buffer and density	Buffer size (km)	Area[d] (km^2)	Density (+-SE) (ind/100km^2)
0.24	12 (2.8)	12-28	1/2 MMDM[c]	3.327	186.45	6.44 (1.50)
			MMDM[c]	6.654	394.55	3.04 (0.71)

a: Average capture probability as calculated by program CAPTURE
b: Number of individuals present in the study area estimated by program CAPTURE using model M_h (jackknife)
c:Mean maximum distance moved for individuals captured at 2 or more camera sites (n=4)
d: Effectively sampled area after adding a buffer to the polygon formed by the outermost camera sites

Conclusion

This study provides the first robust density estimate for clouded leopards based on camera trap capture-recapture methodology. It also provides some of the first data regarding Bornean wild cat ecology.

Acknowledgements

This project is primarily funded by the Darwin Initiative, U.K. Department for Environment Food and Rural Affairs. Additional funding has kindly been provided by Wild About Cats, the International Trust for Nature Conservation (ITNC) and the Felidae Conservation Fund. Logistical support has kindly been provided by the Royal Society South East Asia Rainforest Research Project (SEARRP) and Yayasan Sabah. We thank our local collaborators Datin Professor Maryati Mohammed and Dr. Henry Bernard, University Malaysia Sabah

APPENDIX 3L

Education Boards

(see separate electronic board named Educationboards.pdf)

The Wild Cats of Borneo
Kucing Liar Borneo

The tropical rainforests of Borneo are home to five species of wild cat: flat-headed cat (*Prionailurus planiceps*), marbled cat (*Pardofelis marmorata*), leopard cat (*Prionailurus bengalensis*), the endemic bay cat (*Catopuma badia*) and the enigmatic clouded leopard (*Neofelis diardi*)

These species are currently threatened due to habitat degradation and fragmentation. Despite their threatened status the behaviour and ecology of the Bornean wild cats remains poorly understood.

Hutan hujan tropika Borneo merupakan habitat utama untuk lima spesis kucing liar: Kucing Hutan (*Prionailurus planiceps*), Kucing Dahan (*Pardofelis marmorata*), Kucing Batu (*Prionailurus bengalensis*), Kucing Merah (*Catopuma badia*), dan Harimau Dahan (*Neofelis diardi*).

Kemusnahan dan pembahagian hutan disebabkan oleh aktiviti pembalakan yang berleluasa dan pertanian menyebabkan spesis kucing liar ini semakin terancam. Walaupun demikian, ekologi dan tingkah laku kucing liar ini masih lagi kurang diketahui.

Clouded leopard — Harimau dahan

Named for the beautiful cloud-like coat pattern; recent research suggests this is a distinct species, separate from those on the mainland. This is the largest felid on Borneo, weighing up to 25 kg. This cat takes larger mammal prey such as monkeys and muntjacs.

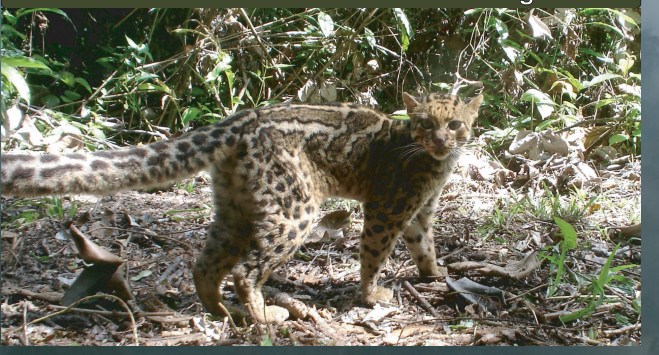
Diberikan nama sempena dengan corak tompok hitam menawan seperti awan. Berdasarkan hasil penyelidikan terkini, spesis kucing ini didapati berbeza dari spesis yang terdapat di tanah besar. Merupakan spesis kucing terbesar di kepulauan Borneo, ianya boleh mencapai berat sehingga 25 kg. Hasil buruan adalah seperti monyet dan kijang

Flat-headed cat — Kucing hutan

This small cat, weighing around 2 kg is an aquatic specialist and is found along small streams, rivers and wetland areas. where it catches its principal prey of fish and frogs.

Saiz kucing yang kecil ini hanya seberat sekitar 2 kg, merupakan pakar akuatik dan sering dijumpai di sepanjang anak sungai, serta kawasan sungai di mana ianya memburu ikan dan katak.

Marbled cat — Kucing dahan



Like a smaller version of the clouded leopard, this wild cat has a beautiful marbled coat. Little is known about this felid, but it is thought to be arboreal and rare.

Serupa dengan Harimau Dahan tetapi bersaiz lebih kecil, spesis ini mempunyai corak tompok menarik seperti jubin. Tidak banyak maklumat yang diketahui mengenai kucing ini, hanya dipercayai bersifat arboreal dan jarang dijumpai.

Leopard cat — Kucing batu

Borneo's least threatened wild cat. Similar in size to a domestic cat, this felid can often be seen at the forest edge along the road sides at night. This cat hunts small mammals such as rats and mice.

Merupakan spesis kucing liar yang kurang terancam, mempunyai saiz lebih kurang sama dengan kucing peliharaan. Seringkali dilihat di tepi jalan kawasan hutan pada sebelah malam dan memburu mamalia kecil seperti tikus untuk makanan.

Bay cat — Kucing merah

Perhaps the least known of all the world's cats, this elusive felid is rarely seen. It is found only on Borneo and is typically reddish in colour. This photo is only the 5th ever of this species in the wild.

Dipercayai spesis kucing liar yang paling kurang diketahui dalam dunia kucing, ianya jarang dijumpai dan hanya didapati di kepulauan Borneo dan berwarna perang kemerahan. Foto Kucing Merah ini merupakan yang kelima pernah diambil di hutan liar.

Conservation of Borneo's cats: The 'Bornean Wild Cat & Clouded Project' is a new initiative by the Global Canopy Programme and the University Malaysia Sabah, which is investigating the ecology of these little known cats. The photographs in this poster were taken in the Danum Valley by remote camera traps, as part of this project. For more information email ajhearn_@hotmail.com or jross_@hotmail.com or see www.globalcanopy.org. Funding for this project is being provided primarily by the Darwin Initiative, U.K. Department for Environment Food and Rural Affairs.

Pemuliharaan spesis kucing liar Borneo ini: Projek 'Bornean Wild Cat & Clouded Leopard' adalah hasil inisiatif oleh 'Global Canopy Programme' dan Universiti Malaysia Sabah, yang bertujuan untuk menyelidik ekologi spesis kucing liar ini. Foto- foto yang terdapat pada poster ini telah diambil di kawasan hutan Lembah Danum dengan menggunakan kamera perangkap yang merupakan sebahagian daripada projek ini. Untuk mendapatkan lebih maklumat, sila berhubung melalui email dengan ajhearn_@hotmail.com atau jross_@hotmail.com atau www.globalcanopy.org . Projek ini dibiayai oleh Darwin Initiative, United Kingdom, Jabatan Alam Sekitar, Pemakanan dan Hal Ehwal Pedalaman.

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Text and design by J. Ross and A.J. Hearn; translations by D. Pamin