

# VERTICAL STRATIFICATION OF FELIDS IN WESTERN SARAWAK, BORNEO

*Researchers: Sally Soo Kaicheen and Jayasilan Mohd-Azlan*

*Animal Resource Science and Management, Faculty Resource Science and Technology,  
Universiti Malaysia Sarawak*

Montane forest prominently occurs in elevation above 1000 m asl in Southeast Asia and covers less than 1% of Sarawak's topography. However, the unique topography, biotic and abiotic conditions of montane forest harbour higher levels of endemism that categorized them as "cool-adapted upland species". These upland or mountaintop species are especially fragile and precarious to the effect of climate change, potentially compound by local extinction if global temperature accelerate in an unprecedented rate. In fact, elevation gradients are the cornerstone in providing insights into the spatial distribution patterns of medium to large mammals, their tolerations and interactions with changes in the biotic and abiotic environments. The distribution of fauna is intertwined with floral composition, yet forest structure changes accordingly along elevation gradients with least biodiversity on the mountaintops. The elevation study on the cryptic and elusive felids species remained uniform compared to other taxa. This study examined the spatial distribution of felids along the elevation gradients in mix dipterocarp forest. At this extreme, this study stratified camera traps along seven elevation gradients (< 100 m, 101 – 300 m, 301 – 500 m, 501 – 700 m, 701 – 900 m, 901 – 1100 m, > 1100 m asl) in six selected regions that range from 800 – 1550 m asl that based in Western Sarawak. A total of four out of five species of felids were recorded throughout 29,449 camera trap efforts include leopard cat (*Prionailurus bengalensis*), marbled cat (*Pardofelis marmorata*), Bornean bay cat (*Catopuma badia*), and Sunda clouded leopard (*Neofelis diardi*). The peat swamp niche specialist, flat-headed cat (*Prionailurus flaniceps*) was not recorded in this study. The leopard cat was recorded throughout the elevation gradients with highest detections (n=174 independent photos), followed by marbled cat which only recorded above 500 m asl with 14 independent photos. The Sunda clouded leopard was only detected at the elevation above 900 m asl with four independent photos while the Bornean bay cat was restricted to the elevation range 301 – 500 m asl with only two independent photos. The occupancy probability of the recorded felids increased along the elevation gradients, yet the detection probability decreased. The recorded felids were estimated with higher relative abundance in the lowland forest than the lower montane forest. Additionally, the activity patterns of the recorded felids showed a high degree of overlap (Dhat 4 = 0.84) and primarily nocturnal in Western Sarawak. The fragility of the montane forests toward the climate change in the vulnerable locations, within Western Sarawak exaggerating the conservation efforts. This study is the first to provide information on the elevational distributions, relative abundances, detections and occupancy probabilities with the influence of altitudes on the occurrence of felids in the mountainous area of Western Sarawak.

*This research was supported by the Malaysia Ministry of Higher Education under Niche Research Grant Scheme (NRGS/1087/2013(01))*



The leopard cat which recorded in Mt. Gading at 447 m asl



The marbled cat that recorded in Mt. Penrisen at 1204 m asl



The Sunda clouded leopard that recorded in Mt. Pueh at 1044 m asl, this detection showed the utilization of fallen log by felids



The Bornean Bay cat was only recorded in Mt. Serapi at 311 m asl on a fallen log