# MESO-MAMMAL CARNIVORE ABUNDANCE AND ACTIVITY PATTERNS IN SINHARAJA, SRI LANKA

Jayasekara EGDP[1,2] and Mahaulpatha WAD[1*]

[1]Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka

[2]Faculty of Graduate Studies, University of Sri Jayewardenepura, Sri Lanka

mahaulpatha@sjp.ac.lk*

## Abstract

A camera trap-based study was conducted in Sinharaja National Heritage Wilderness Area (SNHWA) to investigate the abundance and activity patterns of meso-mammal carnivores. Four main habitat types were identified within the forest area as; dense wet evergreen forest, low dense wet evergreen forest, riverine forest and sub-montane forest. A passive infrared camera trap network was established following a stratified random approach in three selected survey zones representing all four habitat types. The survey period was from January 2019 to April 2021 establishing 36 camera stations with a cumulative sampling effort of 2160 trap days. The average survey period at a single camera location was ~ 60 days. Time stamped camera trap photos/videos were utilized for the analysis of relative abundance and activity patterns of focal species. Relative Abundance Index (RAI) was calculated for each species as records per 100 trap days. Activity level (the proportion of day a species was active) and activity patterns of focal species were analyzed using "*activity*" and "*overlap*" R packages. Activity and overlap density graphs were prepared using the same packages. Eight of the 12 meso-mammal carnivores present in the island were recorded in SNHWA. With a capture frequency of 76 and an overall RAI of 3.52 the endemic *Paradoxurus zeylonensis* was the most abundant species followed by *Viverricula indica*. Interestingly both species were more abundant in the sub-montane forest recording high RAI values (*P. zeylonensis*: 8.1, *V. indica*, 6.1). *Urva viticollis* (RAI: 5.3) and *Lutra lutra* (RAI: 3.6) were more abundant in the riverine habitat. *P. viverrinus*, *Prionailurus rubiginosus* and *Paradoxurus hermaphroditus* were the rarerest with <5 total records. Based on the activity pattern analysis, the mongoose species (*Urva viticollis* and *Urva fuscus*) were observed to be diurnal while all other meso-mammal carnivores were mostly nocturnal. Highest activity level was recorded for *U. fuscus* (0.43). Highest activity overlap (0.82) was between *P. zeylonensis* and *V. indica*. The study reveals the coexistence of meso-mammal carnivores in SNHWA and its facilitation by the spatiotemporal variation in activity patterns of different carnivore species.

**Keywords:** Activity pattern, camera trapping, activity overlap, species co-occurrence, meso-mammals