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Investigating the Assemblage and Activity Patterns of Mesomammals of Order: Canivora in Maduru Oya National Park Using Camera Trap

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Abstract

Mesomammals of Order: Canivora represent an influential guild of forest vertebrates in the dry zone forests of Sri Lanka. This study was conducted to investigate the carnivorous mesomammal species assemblage and activity patterns in Maduru Oya National Park (MONP). Camera traps are increasingly used to study species activity patterns and temporal overlap among sympatric species as well as other heterospecific groups. In this study, camera trap surveys were conducted from January 2019 to May 2020 using 47 camera stations with a cumulative sampling effort of 1,410 trap days. Camera station locations were spatially arranged in a semi-random approach and camera locations were changed after operating 24 hours for a period of<30 days to increase the spatial coverage. Camera traps were stationed to represent all the habitat types present in MONP. Time stamp data on captured photos/videos were used to analyse mesomammal activity patterns. Nine of the 12 mesomammal carnivores present in the country were recorded in MONP. With a capture frequency of 184 and a recording rate of 13.05 (per 100 camera-trap days) Ruddy mongoose (*Herpestes smithii*) was the most abundant species recorded followed by Ring-tailed civet (*Viverricula indica*). Eurasian otter (*Lutra lutra*) and Rusty-spotted Cat (*Prionailurus rubiginosus*) were the rarest species with a recording rate of 0.14. Based on the activity pattern analysis, Sri Lankan Jackal (*Canis aureus naria*) and all mongoose species displayed diurnal activity patterns. Golden palm civet (*Paradoxurus zeylonensis*) and Ring-tailed civet were highly nocturnal. Fishing cat (*Prionailurus viverrinus*) with a relatively high recording rate of 4.33 was observed to be displaying some plasticity in its activity patterns being active in both nocturnal and diurnal hours. It would reduce overlapping of activity with other species such as Ring-tailed civet. The study reveals the coexistence of mesomammal carnivores in MONP and the temporal variation in activity patterns of different carnivore species. MONP can be identified as an important protected area for the mesomammal carnivores of the island due to the availability of suitable habitats to provide habitation to a considerable amount of species present in the county.

Keywords: Activity patterns, Dry zone, Camera trapping, Species abundance, Species co-occurrence