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Habitat Preference and Behaviour of Critically Endangered Hog Deer (*Axis porcinus*) in Honduwa Island Sanctuary in Southwest Sri Lanka

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Abstract

The hog deer (*Axis porcinus*) represents a globally endangered cervid species indigenous to South and Southeast Asia. The Sri Lankan hog deer population is classified as critically endangered, with its habitat restricted to the southwestern region of Sri Lanka. Despite the identified preference of hog deer for riverine, and tallgrass lands, limited research exists on habitat preferences and behavior of the local population. This study aimed to address this gap by conducting a comprehensive camera tap survey in an isolated population on an island sanctuary in the Bentota River. The study site (11.4 ha) hosts an introduced, semi-captive, population of hog deer. The camera trap survey was undertaken to evaluate the behavior, habitat preferences, and other autecological features of the hog deer population on Honduwa Island. A drone survey identified two principal habitat types; secondary forest vegetation and invasive-dominated marshy vegetation. Six camera traps were strategically placed according to a predetermined random grid layout generated by the R-software random number generator. The camera trap deployment strategy involved 11 iterations, with each iteration spanning 7 camera trap nights. Within each iteration, 3 camera traps were strategically positioned for each identified vegetation type. Following each iteration, the camera traps were systematically relocated. This sampling session spanned 448 camera trap nights in both habitats to capture data on the hog deer's presence. The recorded data were analyzed with Mann-Whitney U-tests using the R-software package. Examination of capture rates at individual camera trap locations revealed a noticeable preference towards secondary forest vegetation, with a mean capture rate of 129. In contrast, the invasive-dominated marshy vegetation exhibited a considerably lower mean capture rate of 21.4. The same camera trap images revealed that hog deer are comfortably co-occurring with species like porcupine (*Hystrix indica*), Indian pangolin (*Manis crassicaudata),* common rats *(Rattus rattus)*, and fishing cats (*Prionailurus viverrinus)*. In terms of population dynamics, the study population showed a female-skewed group composition with a February to April fawning season. Further, this isolated population showed dawn-dusk activity peaks the same as their mainland counterparts. The studied population showed predominantly solitary with occasional small groupings of females. In conclusion, the hog deer population in this study shows similar behavioral patterns, activity patterns, and relatively comparable habitat preferences to other natural populations outside of isolated, semi-captive, conditions.

Keywords: Hog Deer, *Axis porcinus*, Ecology, Camera trapping, Habitat preferences