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A Behavioral Study of an Isolated, Semi-Wild, Critically Endangered Hog Deer (*Axis porcinus*) Population in Honduwa Island Sanctuary in the Wet Zone of Sri Lanka

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Abstract

Hog deer (*Axis porcinus*) is the rarest deer species in Sri Lanka. According to the 2012 red list, they are classified as a critically endangered species in Sri Lanka. The ecology and behaviour of Hog deer in Sri Lanka are poorly studied compared to other cervids. There were 30 individuals of isolated, semi-wild Hog deer population in Honduwa island during the study period. The objectives of this study were to determine the major behaviour patterns and activity budget of the hog deer population in Honduwa island sanctuary in Galle district, Sri Lanka. Behavioural observations were carried out during three sample periods 08.00-10.00 (morning), 12.00-14.00 (afternoon), and 16.30-18.30 (early evening) during daytime from July 2022 to April 2023. Focal animal sampling (2864 minutes observation time) and scan sampling (1740 minutes observation time) methods were employed to study behaviour. Four major behaviour patterns were identified: Foraging, comfort, play, and reproductive. Foraging behaviour activities were significantly higher (One-way ANOVA, $p=0.016$) during morning and early evening than that of early afternoon. In morning hours, time spent on browsing was significantly higher than grazing ($p<0.05$). However, in the evening, grazing was higher than browsing. Time spent of feeding during evening hours was higher than mid-day perhaps as they are known to be naturally crepuscular. Comfort behaviour pattern showed a significant difference between time zones ($p<0.05$) with the highest comfort behaviour was shown during mid-day as resting behaviour was predominant when the ambient temperature was high during the mid-day where sitting on the ground was prominently observed under shady, cool and wet areas. Compared to adults and sub-adults, fawns spent a higher time on play behaviour. Among the courtship behaviours observed, chasing, guarding, and lip-licking were the most frequently observed behaviours. The population exhibited a bimodal activity pattern, with feeding being the primary recorded activity. Although the species richness of flora was 41, the diet breadth of hog deer was narrow with 08 species of plants. Observations in the wild and cafeteria test revealed that grasses were the preferred forage followed by *Dilena suffruticosa*, *Artocarpus heterophyllus* and *Ipomoea batatas*. Interestingly, invasive plant species *Dilena suffruticosa* comprised a significant part of their diet. Scarcity of natural food in the island seems to be a major limitation for the hog deer population. Efforts should be made to strengthen the natural food availability in the island, including the conversion of part of other habitats to grasslands.

Keywords: Hog deer, Critically endangered, Behaviour, Activity budget