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Population dynamics and social organization of sambar (*Rusa unicolor unicolor*) in Horton Plains National Park, Sri Lanka

Danushka S. Weerasekera, Sandun J. Perera, William J. McShea, Kithsiri B. Ranawana

ABSTRACT

We estimated the population density and investigated the social organization of sambar (*Rusa unicolor unicolor*) in Horton Plains National Park (HPNP), Sri Lanka. Distance sampling was conducted along six strip transects every month for a period over 3 years (2018–2020) to estimate the density of the sambar population in grasslands of HPNP (9.4 km²), while the antler stage of males and the behavior of individuals were recorded to describe the population's reproductive stage and hence the social organization. Population density estimates showed relative stability over the 3 years and varied over the seasons but with consistent peaks from year to year with the highest population densities recorded in November–December (212.93 ± 25.38 animals/km² in 2018, 187.91 ± 28.51 in 2019, and 179.76 ± 31.85 in 2020). The highest percentage of males in hard antlers was observed from November through January, while the percentage of antlers cast sambar peaked from March to April each year. Hinds were observed with newborn calves throughout the year, but the highest number of newborn calves were recorded from July to August each year, while the number of calves counted each year varied from 210 to 267 individuals. The mean group size was variable throughout each year with the largest groups recorded from September to December (up to 52), the period accompanied by the most observations of mating and sparring behavior. Although on a tropical island, HPNP is situated on a rolling plateau landscape in the highlands, where sambar showed a degree of reproductive seasonality somewhat similar to temperate cervid species.

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Our Scholar

Dr. MSJ Perera

Senior Lecturer

sandun.perera@appsc.sab.ac.lk



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