

Population Dynamics of Sambar Deer (*Rusa unicolor unicolor*) in Horton Plains National Park, Sri Lanka

DS Weerasekera^{1*}, SJ Perera² and KB Ranawana³

¹Postgraduate Institute of Science, University of Peradeniya, Sri Lanka

²Department of Natural Recourses, Sabaragamuwa University, Sri Lanka

³Department of Zoology, Faculty of Science, University of Peradeniya, Sri Lanka

*danushw2@gmail.com

We investigated the social organization of Sambar deer (*Rusa unicolor unicolor*) in Horton Plains National Park, Sri Lanka (HPNP). We used the antler stage of males and the behavior of individuals to describe the population's reproductive stages. Distance sampling protocols were conducted along road strip transects within the grassland area of HPNP (9.4 Km²), each month over three years from 2018 to 2020. Population estimates varied over the seasons but the peak numbers were consistent from year to year with the highest number of individuals recorded in November-December (2002 ± 238.6 SE in 2018, 1766 ± 267.98 SE in 2019, and 1690 ± 299.42 SE in 2020), while the lowest numbers of individuals were recorded in May- June (513 ± 61.702 SE in 2018, 407 ± 49.68 SE in 2019, and 347 ± 51.76 SE in 2020). The percentage of antler-cast males peaked in March-April of each year, while the highest percentage of males in hard antler was observed in November through January. Females were observed with newborn calves throughout the year but the highest number of newborn calves was recorded in July-August of the year (a range of 210-267 calves observed at peak). Mean group size was variable throughout each year with the largest groups recorded from September to December, a period accompanied by the most observations of mating and sparing behavior. Sambar deer in HPNP, inhabiting highland plains of a tropical island, exhibited a reproductive seasonality for both males and females, comparable to temperate cervid species.

Keywords: *Sambar Deer, Antler Cycle, Seasonality, Tropical Cervid*