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Visual Techniques for the Determination of Age and Sex of Sambar Deer (*Rusa unicolor unicolor*) in Horton Plains National Park, Sri Lanka

Weerasekera D.S.^{1*}, Jayawardana N.U.², Perera S.J.³, Ranawana K.B.⁴

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

²*Department of Agriculture Biology, Faculty of Agriculture, University of Peradeniya, Peradeniya, Sri Lanka*

³*Department of Natural Recourses' and Biodiversity, Sabaragamuwa University, Belihuloya, Sri Lanka*

⁴*Department of Zoology, Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka*
**danushw2@gmail.com*

Abstract

A standard table was developed to facilitate the unambiguous identification of growth stages and gender of sambar deer (*Rusa unicolor unicolor*) calves from newborn to one year in Horton plains national park, Sri Lanka (HPNP). This was developed by evaluating the phenotypic characteristics of sambar deer calves (n=97±34) of known growth stages in 2018. A standard table was prepared based on their sex, shape of the snout, shape of the head and forehead between ears, size of the ears for the face, size of the neck, shape of the body, shape of the belly, shape of the back, size of the body and the behavior. The accuracy of the table was tested by using experienced people (n=30) who are regular visitors at HPNP. The average number of sambar deer in HPNP grassland in year 2018, during the study period was 919. In new born calves the accuracy of identification of gender was 83% and the accuracy of identification of growth phase was 87%. Identification of both sex and the growth phase of newborn calves simultaneously was 77% accurate. When the calves reach two weeks from birth, the accuracy of identifying their sex was increased to 93% whereas their growth phase was identified with 90% accuracy. The accuracy of identifying both sex and the growth phase simultaneously was 83% in calves two weeks after birth. When the calves reached five months from calving, the accuracy of identification of both sex and the growth phase increased to 100%. Calves at six months age, the identification of growth phase was 97% accurate. Accuracy of identifying of both gender and the growth phase simultaneously was 97%. In the sample between six months and one year the accuracy of identification of gender and growth phase was 95%. Starting from newborn stage to six months of age, the accuracy of identification based on the characters of the standard table increased steadily. However, upon reaching six months, there was a declination of identifying both gender and the growth phase of the sambar deer in HPNP simultaneously.

Keywords: Sambar deer calves, Gender, Growth phase, Horton Plains