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The Impact of Recreational Trails on the Diversity of Tetrapods within the Horton Plains National Park**Dhananjani D.M.T.* , Kalhari K.M.T., Mahaulpatha W.A.D.**

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Abstract

The impact of recreational trails on the diversity of tetrapods was studied within the Horton Plains National Park (HPNP) from December 2017 to October 2018. Three main habitats were selected to determine the effect of recreational trails on species richness, abundance and diversity of tetrapods, three main habitats were identified as cloud forest, aquatic habitats and grasslands. Three 100 m fixed length line transects were marked along the nature trails in each habitat, namely as trail transect. In addition, three 100 m fixed control transects were placed 200 m away from the existing the nature trails in each habitat. All tetrapods along the trails were counted and calculated species diversity (Shannon-Wiener index). The highest species diversity was recorded along control transects. There was a significant difference in the amphibian diversity index of control and trail transects in cloud forest and aquatic habitats (Hutcheson *t*-test $p < 0.05$). There was no significant difference in individuals between the trail and control transects for the Sri Lanka montane hour glass tree frog and Schmarda's shrub frog (Mann-Whitney U test $p > 0.05$). The presence of the trail did not significantly affect the diversity of reptiles in cloud forests and aquatic habitats ($p > 0.05$). However, the abundance of the Black lipped lizard and the Common rough sided snake was significantly different between trail and control transects ($p < 0.05$). In all habitat, there was a significant difference in bird diversity between transects ($p < 0.05$) through there were exceptions with respect to some species. Hence, Sri Lanka white eye, Sri Lanka orange billed babbler, Common tailorbird and Sri Lanka wood pigeon were the bird species that were not significantly different. Sri Lanka highland shrew and Stripe-necked mongooses were the only mammal species that showed a significant difference between trail and control transect ($p < 0.05$). Present study indicated that the presence of heavily traversed recreational trails causes a decline of species diversity within protected areas. Therefore, within HPNP, recreational trails have had a detrimental impact on species diversity. It may be inferred that most of Sri Lanka's other protected areas require a reduction in the number of recreational trails to be built.

Keywords: Horton Plains national park, Species diversity, Tetrapods