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POPULATION DENSITY ASSESSMENT OF THREE THREATENED AGAMID SPECIES IN HORTON PLAINS NATIONAL PARK, SRI LANKA

Keerthirathna W.L.R, Jayasekara E.G.D.P and Mahaulpatha W.A.D.*

Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka

mahaulpatha@sjp.ac.lk

ABSTRACT

Horton Plains National Park (HPNP) is home to three endemic and threatened agamid species in Sri Lanka; *Ceratophora stoddartii, Cophotis ceylanica and Calotes nigrilabris*. This study was carried out from January 2016 to November 2017 in selected months to estimate the population densities of these 3 lizard species within HPNP. The area of the park was divided into 1 km^2 plots (using a grid in Arc GIS 10.4) and line transect surveys were carried out following the "Distance" method to obtain population counts. A total of 27 plots were marked within the park area and 24 plots were surveyed. In each sampling plot, three line transects were marked and traversed to identify and count the lizards on either side of the line. The perpendicular distance to each lizard sighted was recorded. A total of 144 transects were surveyed in two different time periods of each year (Dry months - 56.8 mm mean rainfall - ; January, February, March and Wet months – 125.9 mm mean rainfall; September, October, November). The program "Distance 7.1" was used to calculate the densities of the three lizard species. The highest population density was recorded for *C. stoddartii* in the wet months of 2016 and 2017 (32.91 ind/ha, n=77; 26.70 ind/ha, n=66). However, *C. stoddartii* density was relatively lower in the dry months of both years (2016: 19.79 ind/ha, n=58; 2017: 17.18 ind/ha, n=55). The lowest population density was recorded for *C. nigrilabris* in the wet months of 2017 (7.80 ind/ha, n=38) which was drastically lower than the densities in rest of the sampling periods. The population density of *C. ceylanica* did not show much fluctuations throughout all four sampling periods (lowest: 9.71 ind/ha, n=26; highest: 11.20 ind/ha, n=25). However, the density of *C. ceylanica* was relatively low when compared with other two species. These results indicate that more conservation focus is required to protect these threatened agamid species with low population densities.

Keywords: *Threatened lizards, Population density, Cloud Forests, Conservation*