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**USE OF GIS IN HABITAT MAPPING OF TWO SRI LANKAN
HORNBILL SPECIES**

A PROJECT REPORT PRESENTED BY
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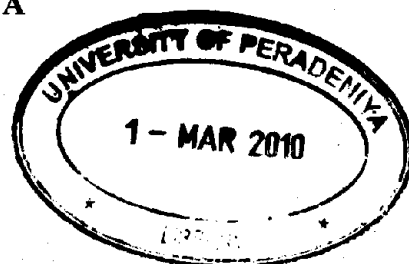
To the Board of Study in Earth Science of the
POSTGRADUATE INSTITUTE OF SCIENCE

*In partial fulfilment of the requirements
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USE OF GIS IN HABITAT MAPPING OF TWO SRI LANKAN HORNBILL SPECIES

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Ecological Niche Factor Analysis (ENFA) was carried out and habitat distribution maps were generated to identify distribution pattern of Sri Lanka Grey Hornbill (*Ocyceros gingalensis*) and Malabar Pied Hornbill (*Anthracoceros cornatus*) at the Girithale Nature Reserve. Birds were surveyed from March 2006 to February 2007. Randomly selected line transects were traversed slowly on foot between 06:00 – 11:00 hrs. Coordinates of points were recorded in 150 m intervals along transects using a global positioning system (GPS). Hundred meter buffer was created for every point where hornbills observed and they were recorded as present sites.

Triangulated Irregular Network (TIN) was created by using contour layers of 1:50,000 topographic maps. TIN was converted in to 50 m Digital Elevation Model (DEM). Water features and road segments were extracted from 1: 50,000 land use layer and distances were calculated using distance analysis tools. Selected sample points were surveyed to measure average vegetation structure in each land use category. Each layer was converted in to 50 m grid. All grid layers were converted into IDRISI format using av2idrisi script and ArcView3.2. ENFA was carried out inside the BIOMAPPER software. An overall marginality value (0.798) indicated that the required habitat of the two bird species differs from the average habitat available within the study area.

The high, positive marginality coefficient for Canopy cover above 15 m (0.545) indicates that these two bird species are linked primarily to more percentage of canopy cover above 15 m and accounted for 42.56% of the specialization. Specialization coefficients show that there is clear specialization in terms of distance to water. Reclassified habitat distribution map indicated that only about 6% of the study area provided “core” habitat

for the selected bird species. Present study highlighted the need for higher resolution datasets which would allow future studies to generate more accurate maps that would more effectively target specific areas for exploration.