

Bird's habitat suitability model in Ayer Hitam Forest Reserve using geographical information system.

ABSTRACT

Peninsular Malaysia's growing population and rapid economic development have resulted in pressure of forest area usage which consequently led to decrease in wildlife habitat. Recent urban development surrounding Ayer Hitam Forest Reserve (AHFR) in Selangor, for example, had threatened potential habitats of wildlife including birds. This study was undertaken with two objectives: (i) to develop bird's habitat suitability model using GIS for Ayer Hitam Forest Reserve and, (ii) to identify and map bird habitat location and distribution in the study area. In the study, available AHFR digital map was used in the modelling and analysis. The bird's distribution data was digitized into a GIS using PC-Arc View Version 3.3 software. Suitability model for classifying bird habitat was developed incorporating pre specified criteria. The four criteria used to classify bird's habitat suitability area were "distance from forest edge", "distance from road", "distance from river" and "site slope". These criteria were ranked and weighted prior to calculation by using Suitability Equation in the GIS software. The bird habitat suitability scales used in this study were "highly suitable", "moderately suitable" and "marginally suitable" areas. The suitability model implemented in GIS enables the mapping of suitable bird habitat in AHFR. From the analysis, it was found that the highly suitable area for bird's habitat was located at the centre of the AHFR, which lied from north to south. The highly suitable area was found to cover about 615.83 hectare (6158254 m²), and for moderately and marginally suitable areas, they were about 517.07 hectare (5170752 m²) and 59.98 hectare (599802 m²), respectively. A total of 36 birds were observed present in the highly suitable area, 19 in moderate suitable area and none in the marginally suitable area. The main bird species in the highly suitable area was Little Spiderhunter, Olive-winged Bulbul and Yellow vented Bulbul. Results showed that GIS can be used to identify suitable area for bird habitat in AHFR, hence, the approach can be used for wildlife management strategy in AHFR in the near future.

Keyword: Ayer Hitan Forest Reserve; Bird's habitat model; GIS; Mapping.