

Habitat suitability analysis in a natural peat swamp forest on Sumatran elephants using remote sensing and GIS

ABSTRACT

Context: It is essential to assess the suitable habitat for elephants in order to mitigate the effects of forest fragmentation on conservation. Aims: This study aimed to estimate the potential suitable habitats for Sumatran elephants in the fragmented forest in the Padang Sugihan wildlife reserve area in southern Sumatra, Indonesia. Methods: The habitat suitability was analyzed using some environmental factors such as slope, elevation, land cover, distance to rivers, and distance to agricultural areas. The remote sensing, geographic information system (GIS), and MaxEnt model were used to determine the potential habitat suitability for Sumatran elephants. Results: This study revealed areas of suitable habitat were evenly distributed throughout the study area, with the composition being suitable (45%), highly suitable (5%), and less suitable (50%). This study revealed the most suitable habitats were found in dense forest areas (gelam or *Melaleuca cajuputi* forest), which were highly affected by river adjacency, whereas agricultural areas resulted in constrained suitability and fragmentation of forested areas. Conclusions: As a whole, the estimation of elephant habitat using remote sensing and GIS may guide the development of conservation strategies for elephant conservation in this region.