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LARUS RELICTUS HABITAT HEIRARCHICAL EVALUATION BASED ON A DATA DRIVEN APPROACH

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Abstract

The application of Species Distribution Models (SDM) in the management of species habitat and environmental impact changes has been widely used by scientist and ecologist globally, however this study proposes a novel analytical technique involving the combination of a statistical ranking algorithm and Remote sensing GIS data (habitat and threat) to analyze the suitability hierarchy of the habitat of a signature water-bird (*Larus relictus*). The results obtained indicated that about 47.63% of the study region were suitable to accommodate *L.Relictus* during their breeding/resting season, while 27.08% proved to be highly unsuitable for this species. Based on the spatial distribution of the statistical data already incorporated into the GIS environment, it was observed that regions surrounding the Bojiang Lake (especially polygons 38 and 42) dominated by low vegetation and increased amount of moisture proved to be the best region for this species. On the contrary, polygon 23 located in the southern part of the study region proved to be worst region for this species being dominated by significantly high amount of threat factors having the highest mean normalized hierarchical value and ranking 60th out of 61 in terms of standard deviation. Being able to distinctively capture different suitability level of the study region, we could say that the application of this technique is quite effective and beneficial. This is because compared to other decision-making tools, this technique which solely relies on remote sensing and vector data gives decision makers an option of weight application if so desired.

Key words: GIS, habitat suitability, rank algorithm, remote sensing, vector, water-birds

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