

**GIS-BASED ASSESSMENT OF NATURE-BASED ECOTOURISM POTENTIAL
IN THE JAFFNA DISTRICT, SRI LANKA**

Packiyathan Rajkumar^{1*}, Sangarappillai Ravi² and Chaminda S. Wijesundara³

¹*Wetland Conservation Society, Jaffna, Sri Lanka*

²*Department of Geography, Faculty of Arts, University of Jaffna, Sri Lanka*

³*Department of Zoology, Faculty of Science, University of Peradeniya, Sri Lanka*

*vpkuma82@gmail.com

Ecotourism is responsible traveling to natural areas that conserve the environment and sustain the well-being of local community. Jaffna District has a great potential for tourism development. Lagoons, marshlands, mangroves, salt marshes, birding habitats, beaches, and sand dunes are major resources for promoting nature-based ecotourism. Despite numerous attempts to identify the ecotourism potential in Jaffna, GIS-based approaches are rare. Thus, the present study was designed to evaluate the potential of nature-based ecotourism in the district using the Multi Criteria Decision Making (MCDM) method as a tool in the Geographic Information System (GIS). Ecotourism potential analysis was carried out based on a biodiversity survey undertaken from 2013 to 2018 in the Jaffna peninsula. MCDM and criteria ranking method in GIS were used for the suitability analysis. For this, ecotourism aspects such as wildlife in the area (diversity of birds, including abundance of flamingos) and the presence of beaches, mangroves, salt marshes, and sand dunes were considered. Here, factors such as the presence of wildlife, accessibility, community characteristics, and aesthetic and social values were considered. For evaluating the suitability of wildlife, criteria such as species diversity and richness of birds were used. For evaluating the suitability of beaches (facilities) and to evaluate the suitability of mangroves, salt marshes, and sand dunes, density and distribution were used, and tourist preferences, proximity to residential areas, proximity to tourists' accommodation, scenic beauty, and distance from main roads were used for each aspect (factors were selected according to expert opinion). The ranking levels were applied within the criterion and between the criteria. Suitability maps for each aspect were produced through overlaying of thematic maps of each aspect. Based on multi-criteria analysis, eight flamingo sites, 15 birding areas, 17 mangrove areas, three beaches, seven salt marsh sites, and six sand dunes with high potential for promotion of nature-based tourism were identified. The present study showed that 70 species of migrant birds, including the Greater Flamingo (*Phoenicopterus roseus*), an uncommon migrant, and critically endangered, rare and restricted resident and migrant birds, true mangroves species with large extents, five bird species of salt marshes, sunny beaches associated with the fishing community and sand dunes with vegetation cover have great potential for designing and promoting nature tour activities. Lack of investments, ecotourism promotional activities, and other infrastructure facilities negatively affect the ecotourism development of the study areas. Hence, these areas should be promoted for ecotourism development with stakeholder participation from a sustainable point of view.

Keywords: Ecotourism, Jaffna District, Multi-Criteria analysis, Nature-based tourism