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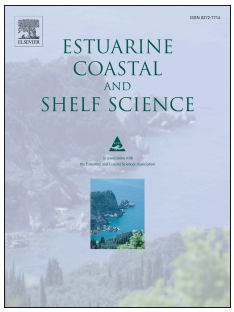

Mapping the conservation priority of migratory shorebird habitat on a dynamic deltaic coast

Ting Zhang, Bo Tian, Shunqi Bo, Lin Yuan, Yunlong Zhao, Xiao Yuan

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Mapping the conservation priority of migratory shorebird habitat on a dynamic deltaic coast

Ting Zhang[a], Bo Tian[a,*], Shunqi Bo[b], Lin Yuan[a], Yunlong Zhao[c], Xiao Yuan[b]

[a] State key Laboratory of Estuarine and Coastal Research, East China Normal University, Shanghai 200062, PR China

[b] Shanghai Wildlife Conservation Management Station, Shanghai 200023, PR China

[c] School of Life Science, East China Normal University, Shanghai 200041, PR China

*Corresponding author: Email: btian@sklec.ecnu.edu.cn; Telephone: +86-21-52134943; Fax: +86-21-62546441

Abstract

Shorebird habitat degradation and loss due to high-intensity disturbances from human activities and the negative effects of global climate change in coastal deltas have led to the need to identify and designate priority areas for conservation with different levels of protection. We have proposed an integrated framework and model for the management of priority shorebird habitats in dynamic coastal delta zones (MPH-DC) based on a fuzzy spatial assessment model that incorporates habitat importance and disturbance analyses. By evaluating the relationships between shorebird populations and key ecological habitats, 19 structural factors, including land cover type, vegetation structure, terrain, potential human influence and natural interference, were derived from multi-temporal optical and radar remotely sensed imagery and incorporated into the index system to evaluate habitat conservation priority levels for Charadriidae and Anatidae in the Changjiang estuary, a typical coastal habitat that currently faces enormous challenges but is not yet under dynamic conservation priority management at a large spatial-temporal scale. The use of the MPH-DC framework proved to be effective for evaluating the spatial distribution and conservation priority of habitats in dynamic coastal deltas and for rapidly identifying regions where restoration and priority adjustment are needed, thus enriching broad-scale integrated ecosystem management solutions for coastal deltaic zones.

Key-words: Coastal zone, Fuzzy spatial assessment, Migratory shorebirds, Priority