Where is the next choice of smooth cordgrass (*Spartina alterniflora*) in China?

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Biological invasion is a major environmental problem in the world, affecting agriculture, forestry, fisheries, human health and natural ecosystems. *Spartina alterniflora*, commonly known as smooth cordgrass, is one of the world-wide, notorious invasive species. In 1979, it was intentionally introduced to China for its ecological and economic benefits. However, the expansion of this grass has also brought a series of deleterious impacts on the native organisms and their habitats.

Chinese researchers have explored various ways to eliminate this invasive species. None of them has achieved a significant result. Finding new suitable areas is the first step and the most effective way to manage this species. This study aimed at finding the new potential areas prone to invasion of smooth cordgrass in China, especially in the Jiangsu province. This was done by combining large and small spatial-scale modeling.

The MAXENT (maximum entropy) model was used as the main tool to find the probable distribution of the best suitable areas. This model requires input of data regarding species distribution as well as environmental data. Species data were derived from the database of Global Biodiversity Information Facility and published literature related to *S. alterniflora*. Environmental data were collected from WORLDCLIM and BLM-shipping software and further selected by three different methods (Bioclimatic, ENFA and Jackknife) and entered into the model respectively.

In the large-scale habitat suitability mapping, all of the three maps illustrated that the potential survival areas of *S. alterniflora* was mostly concentrated in southeast part of China which has the same latitude as the origin areas, as well as mostly are coincided with its present distribution in China. In the small-scale habitat suitability maps, ENFA and Jackknife maps both find southern part of Jiangsu (Wuxi, Yixing and Suzhou) have the largest number of "endangered" habitats for *S. alterniflora*. Bio-climatic's result discovered the fact that Yancheng coastal line is the most potential areas prone to invasion of *S. alterniflora*.

In this study, the potential spread of *S. alterniflora* in China was predicted for the first time. A continued study of this species is warranted especially for the endangered areas. Hopefully my study will help local governments to develop more effective strategies for managing this invasive species in the future. On the other hand, people could develop *S. alterniflora* extraction for commercial use. In that case, this invasive species may turn into wealth.