



Responses of habitat suitability for migratory birds to increased water level during middle of dry season in the two largest freshwater lake wetlands of China

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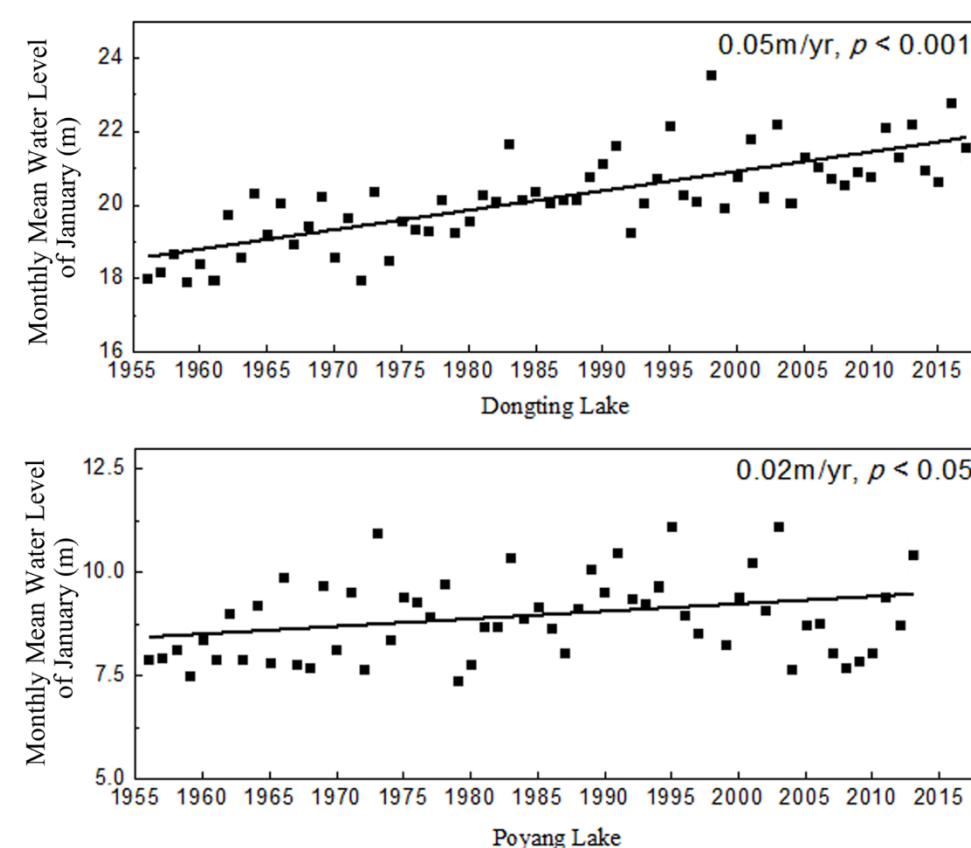


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Introduction

Dongting Lake (DTL) and Poyang Lake (PYL), the China's two largest freshwater lakes, are vital migration routes and wintering habitats for the migratory birds of East Asian - Australia. Due to damming and climate change, the water level during the middle of dry season had a significant tendency of increasing in the two lakes.

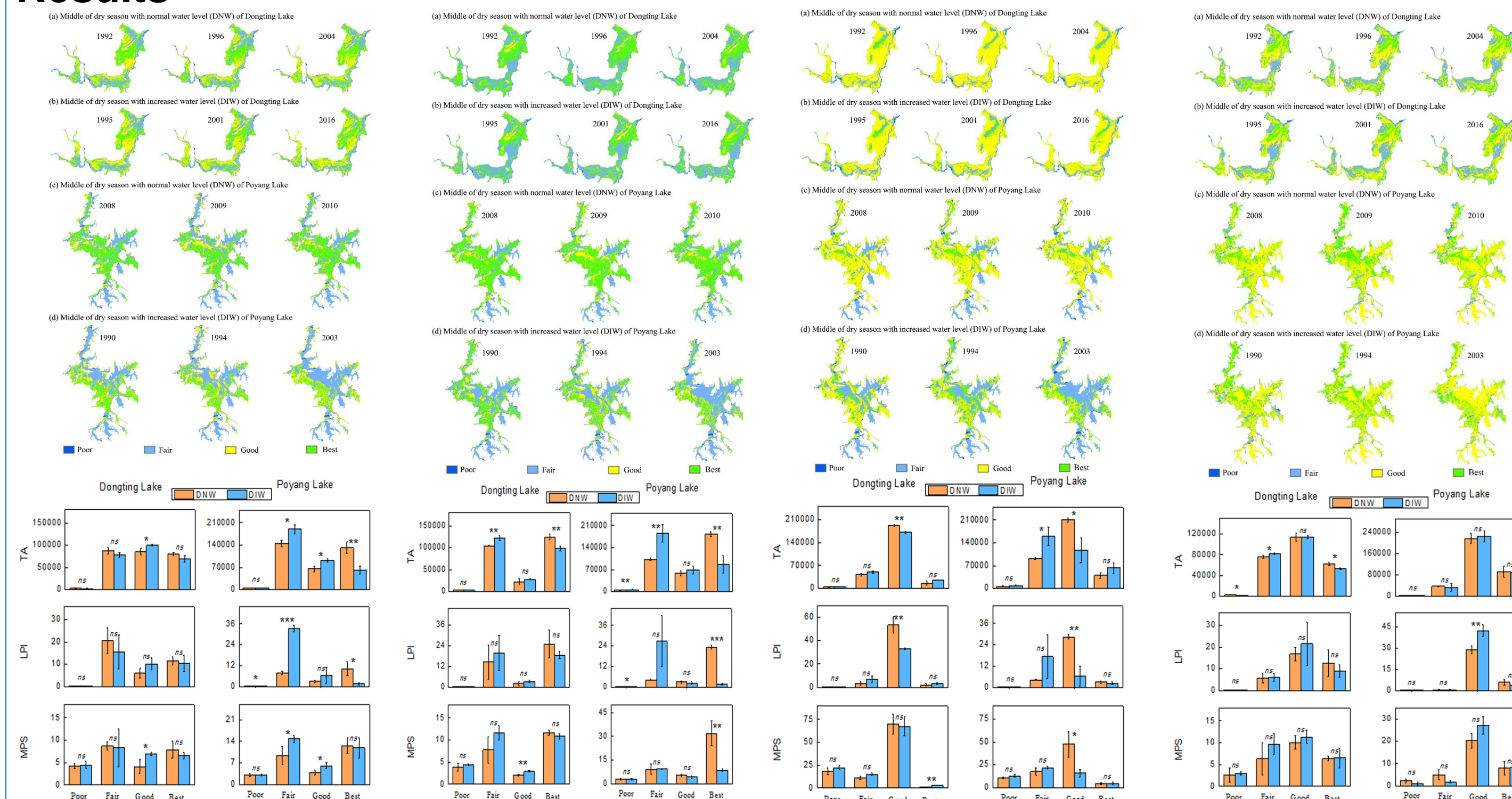


Methodology

Three years were designated as the representative of the middle of dry season with increasing of water level (DIW) and those with normal water level (DNW), respectively, for each lake. The land cover type, human disturbances (road, urban resident districts and township settlements), altitude, and gradient were selected as the environmental factors.

An integrated index of habitat suitability, $HSI_{ij} = \sum_{j=1}^m w_{ij} f_{ij}$, was calculated for each group of birds using a method of geo-spatial overlay calculation (using ArcGis 10.2 software). TA, LPI and MPS of each grade of habitat suitability for Anatidae, Charadriidae, Ardeidae and Laridae were calculated. The significant differences of indices between DIW and DNW were examined.

Results



Conclusions

This paper showed that the increased water level during MDS 1) had a negative influence on the habitat suitability for Anatidae in DTL and PYL, and this influence in PYL was stronger than that of DTL; 2) had a negative influence on the habitat suitability for Charadriidae in DTL and PYL, and this influence in PYL also was stronger than that of DTL; 3) had a neutral influence on the habitat suitability for Ardeidae in DTL and PYL, and this influence in PYL also was stronger than that of DTL; and 4) had a lesser negative influence on the habitat suitability for Laridae in DTL and had no influence on that of PYL.

Acknowledgments

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