

## ***Carex* Dynamics as an Environmental Indicator in the Poyang Lake Wetland Area: Remote Sensing Mapping and GIS Analysis**

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Shuisen Chen<sup>1,2,3,4</sup>, Xiaobo Su<sup>3</sup>, Ligang Fang<sup>3</sup>, Liangfu Chen<sup>5</sup>

<sup>1</sup>College of Informatics, South China Agriculture University, Guangzhou 510642, China

<sup>2</sup>Key Lab Ecological Environment and Resource Development of Poyang Lake, School of Geography and Resource Environment, Jiangxi Normal University, Nanchang 330027, P. R. China

<sup>3</sup>Guangdong Public Lab of Environment Science & Technology, Guangzhou Institute of Geography, Guangzhou 510070, P. R. China

<sup>4</sup>Guangzhou Institute of Geography, 100 Xianliezhong Road, Guangzhou 510070, P. R. China

<sup>5</sup>State Key Laboratory of Remote Sensing, Jointly Sponsored by the Institute of Remote Sensing Applications of China Academy of Science and Beijing Normal University, Beijing 100101, P. R. China

E-mail: css@gdas.ac.cn

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### **Abstract**

It is of considerable importance to analyze the changes in *Carex* distribution and environmental elements in order to protect and exploit the wetland resources of the Poyang Lake wetland area, one of the most important wetlands in the world. Employing multitemporal remote sensing images acquired on October 31<sup>st</sup>, 2005 and December 10<sup>th</sup>, 1999, the authors determined the dynamic distribution of *Carex* by combining spectral angle mapping technologies. Then, for the first time, ArcView GIS-based statistical analysis was performed on the *Carex* dynamics. Finally, the relationship between the *Carex* dynamics and delta change, and the landscape fragmentation index of *Carex* were further analyzed. It was found that: (1) the extent of *Carex* in the Gan River delta, particularly in the north distributary of the river, was directly correlated to lake sedimentation and regional drought in the same year; (2) the distribution of migratory birds is influenced by factors additional to the distribution of *Carex*; and (3) the wetland landscape ecology of the Poyang Lake wetland area is facing threats from human disturbance and needs further attention if it is to retain its status as an important bird habitat.

### **Keywords**

Remote sensing and GIS; *Carex*; Dynamics, Poyang Lake wetland, Environmental indication

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