OVERVIEW OF THE THIRD SPECIAL SECTION OF PAPERS FROM THE 10TH SOUTHERN FORESTRY AND NATURAL RESOURCE MANAGEMENT GIS CONFERENCE

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ABSTRACT. This is the third Special Section of papers from the 10 th Southern Forestry and Natural Resource Management GIS Conference (SOFOR GIS). The conference was held nearly two years ago in Athens, Georgia (USA). In this Special Section resides two papers that have passed the peer review process. One paper consists of a geographical analysis of the meandering of the Congaree River in South Carolina over the last 130 years. The second paper consists of a geographical analysis of the distribution of an invasive plant species, multiflora rose (*Rosa multiflora* Thunb.) in the Midwestern United States. Each of these research papers has undergone peer review by respected experts in associated fields.

Keywords: Symposium proceedings, geographic information systems, spatial information technologies, mapping technologies, SOFOR GIS

1 INTRODUCTION

The Southern Forestry and Natural Resource Management GIS Conference (SOFOR GIS) is held every two years, often in Athens, Georgia (USA), to provide academics and practitioners an opportunity to meet and to discuss new ideas related to mapping technologies. The conference series began in 1996, and the 10th conference in this series was held in 2015. The conference organizers continue to produce an editorially-reviewed set of proceedings (papers and abstracts), however, since 2010 the organizers have encouraged authors of a select set of papers to submit their work to the peer-reviewed journal *Mathematical and Computational Forestry & Natural-Resource Sciences* (MCFNS). As a result of this process, special Sections in MCFNS have been developed. Two papers from this conference were published in Volume 8, Issue 1 of MCFNS (Kauffman and Prisley, 2016 and Bettinger et al. 2016), and one paper from this conference was also published in Volume 8, Issue 2 (Crosby and Self 2016). Here, Volume 9, Issue 2 (this issue), of MCFNS contains the third and final Special Section of papers from the 10th SOFOR GIS conference.

2 CONTENTS OF THE 3rd SPECIAL SECTION

In the final set of papers of our series arising from the 10th Southern Forestry and Natural Resource Management GIS Conference, Williams et al. (2017) obtained a map of the Congaree River in South Carolina that was developed by the U.S. government in 1885 for the purpose of exploring ways to improve river transportation. An analysis was employed to georeference and transform the historic maps, and compare them with a digital elevation model created from a LiDAR survey of the river system. In referencing the mapped alluvial system to a current projection and coordinate system, several unique processes were employed to ensure that the mapped features closely matched real landscape features (bluffs, earthwork, meanders). Issues regarding the edge matching of individual scans of the maps and the fitting of the transformed landscape to ground control points are described and may be of value to others who are digitizing historical maps. In the second paper, Yu et al. (2017) describe a model for predicting the distribution of an invasive plant, multiflora rose (*Rosa multiflora* Thunb.), by using spatial statistics models. Comparisons are made with regression models to illustrate the advantage of using spatial models for the simulation of invasive plant distributions across broad landscapes. Through the comparisons of alternative models, the correlation between the plant distribution and landscape variables (natural and anthropogenic) was illustrated. A rather thorough analysis of spatial weight matrices was conducted in this work, and therefore it may be of value

to others who embark on spatial statistical analysis of ecological phenomena.

3 FUTURE CONFERENCE LOCATION AND DATE

On December 11-12, 2017, the 11th Southern Forestry and Natural Resource Management GIS Conference will be held in Athens, Georgia. The tentative program can be accessed through the conference website, www.soforgis.net/2017. The 11th SOFOR GIS conference will continue to provide presentations on advancements in geospatial analysis of forest resources (inventory, health, etc.), yet will also provide an increasing number of presentations on advanced technologies (e.g., unmanned aerial vehicles) that are becoming readily available to natural resource management professionals. The conference facilitates interaction among academics and practitioners on practical issues involving the use of mapping and other geospatial technologies and provides a venue for the delivery of advances in science that may be important to forest managers.

REFERENCES

Bettinger, P., K. Merry, and C. Cieszewski. 2016. The importance of mapping technology knowledge and skills for students seeking entry-level forestry positions: Evidence from job advertisements. Mathematical and Computational Forestry & Natural-Resource Sciences. 8(1): 14–24.

Crosby, M.K., and A.B. Self. 2016. Spatial assessment of meadow vole herbivory on a replanted field in Mississippi. Mathematical and Computational Forestry & Natural-Resource Sciences. 8(2): 18–24.

Kauffman, J.S., and S.P. Prisley. 2016. Automated estimation of forest stand age using Vegetation Change Tracker and machine learning. Mathematical and Computational Forestry & Natural-Resource Sciences. 8(1): 4–13.

Williams, T.M., D.C. Shelley, and B. Song. 2017. GIS analysis of historical maps: A case study from an 1885 survey of the Congaree River. Mathematical and Computational Forestry & Natural-Resource Sciences. 9(2): 3–16.

Yu, W., Z. Fan, and W.K. Moser. 2017. Incorporating a local-statistics-based spatial weight matrix into a spatial regression model to predict the distribution of invasive *Rosa multiflora* in the Upper Midwest forestlands. Mathematical and Computational Forestry & Natural-Resource Sciences. 9(2): 17-29.