AN OVERVIEW OF THE 10TH SOUTHERN FORESTRY AND NATURAL RESOURCE MANAGEMENT GIS CONFERENCE

PETE BETTINGER, KRISTA MERRY

University of Georgia, Athens 30602 GA, USA

ABSTRACT. With this brief summary, we provide an overview of the 10th Southern Forestry and Natural Resource Management GIS Conference (SOFOR GIS), and a Special Section of this journal related to it. The conference was held in Athens, Georgia (USA) on December 7-8, 2015 at the University of Georgia Center for Continuing Education. Several papers from this conference were submitted for the publication in the journal; and some are still undergoing peer review. We anticipate that future issues of *Mathematical and Computational Forestry & Natural-Resource Sciences* will include other papers from the conference, while this Special Section contains the first two articles of the collection that already have passed the peer review process.

Keywords: Symposium Proceedings, SOFOR GIS, Geographic Information Systems, Spatial Information Technologies, mapping technologies

1 INTRODUCTION

The Southern Forestry and Natural Resource Management GIS Conference was an opportunity for practitioners and academics to present and discuss new ideas concerning mapping technologies. Held biannually since 1996, the conference provides presentations of scientific interest as well as presentations devoted to demonstrating and implementation of new technologies. A proceedings has been developed for each of the ten conferences, yet since 2010 a small set of selected papers have been also submitted for peer-review for the journal *Mathematical and Computational Forestry & Natural-Resource Sciences* (MCFNS). Submissions that passed the peer review process were published simultaneously in the proceedings and in a Special Section of MCFNS committed to the topics of the conference. All of the past publications in this Special Section of MCFNS can be found at http://mcfns.com/index.php/Journal/browseSearch/ sections/view?sectionId=41 and they include: Bettinger and Fei (2010), Chapman et al. (2010), Lipscomb and Baldwin (2010), Lowe and Cieszewski (2014), and Williams et al. (2014).

The 10th SOFOR GIS Conference contained a diverse program of presentations that spanned a number of disciplines. Mr. William Consoletti provided the introductory keynote address of the conference, where he discussed the history of GIS and GPS from his perspective, which included 35 years as a GIS professional in the forest prod-

ucts industry. Subsequent concurrent sessions allowed others to deliver 25 minute presentations on relevant topics. The conference comprised concurrent sessions in the following categories:

- GIS applications and education
- GIS modeling and analysis
- GIS techniques / methods
- GIS for forest products and FIA (inventory analysis)
- Remote sensing
- Image analysis
- Demonstrations

Presentations ranged from topics related to the spatial analysis of wood supply to various topics related to the spatial prediction of wildlife habitat. They also included a long-term geographical study of land changes in the lowlands of South Carolina and the spread of invasive species in Mississippi. The use of LiDAR was discussed in several presentations, for estimating forest conditions that could be used in forest inventories and wildlife habitat models. Various analyses were presented of soils data for erosion and forest productivity purposes, of urban tree inventories, and of data collected by unmanned aerial vehicles (UAVs) for the development of forest-related information. A number of presentations were related to the analysis of wildlife habitat, particularly in aquatic environments. Lending variety to the program, GIS-related initiatives were discussed for projects involving the U.S. Forest

Service and the Southern Region Extension Forester's Office.

The second day of the conference consisted of demonstrations of UAV, LiDAR, and GIS technologies. We were fortunate to have professionals from ESRI and F4 Technologies describe new developments for practicing foresters. Presentations that described outcomes from consortiums and university collaborations closed the conference. These included a description of a GIS-based forest change detection tool, and a mapping initiative aimed at describing southeastern biomass resources.

The planning committee for the 2015 (10th) Southern Forestry and Natural Resource Management GIS Conference consisted of the following individuals:

- Pete Bettinger, Conference Chair (University of Georgia)
- Krista Merry, Proceedings Chair (University of Georgia)
- Tyler Brown, Program Chair (South Carolina Department of Natural Resources)
- Chris Cieszewski (University of Georgia)
- Michael Crosby (Shorter University)
- Joseph Fan (Auburn University)
- Bill Hubbard (Southern Regional Extension Forestry)
- Qingmin Meng (Mississippi State University)
- Jacek Siry (University of Georgia)
- Bo Song (Clemson University)
- Daniel Unger (Stephen F. Austin State University)
- Steven Weaver (Southern Regional Extension Forestry)

2   Contents of the Special Section

This Special Section of MCFNS contains two papers that were presented at the 10th SOFOR GIS conference. In one paper, Kauffman and Prisley (2016) from Virginia Tech describe a process of automatically delineating forest stands and estimating the general age of trees using historical stacks of Landsat imagery. The process utilizes an algorithm that is able to identify forest disturbances based on changes in reflected energy. Using sets of classification rules, the algorithm examines when forest changes occurred, and whether they coincide with the re-establishment of new forests. The process was applied to the Commonwealth of Virginia, and overall accuracy was considered to be relatively high in determining where forest disturbances occurred from 1984 to 2010. Given the number of years observed since prior disturbances, ages for forest stands were estimated for many areas across the state.

The other paper by Bettinger et al. (2016) from the University of Georgia describes mapping technology knowledge and skills that have recently been desired of entry-level foresters, as suggested through job advertisements. Content analysis procedures were employed to analyze the use of mapping technology requirements as basic criteria for screening candidates seeking entry-level forestry positions in the United States, over a period covering 6 months in 2015. Many, but not all, of the job advertisements contained requirements targeting knowledge and skill of GIS, GPS, and other spatial technologies. There seemed to be differences in the use of the requirements regionally within the United States, by employer (public and private), and by job type. The results may be of value for both educational institutions preparing students for future employment, and job seekers preparing their cases for future employment.

These two papers, along with others that may follow, illustrate the diversity of presentations delivered at the 10th Southern Forestry and Natural Resource Management GIS Conference. The full conference proceedings will be available through the conference website (http://www.soforgis.net/2015/).

References

Bettinger, P., and S. Fei. 2010. One year's experience with a recreation-grade GPS receiver. Mathematical and Computational Forestry & Natural-Resource Sciences. 2(2): 153–160. Retrieved from http://mcfns.com/index.php/Journal/article/view/MCFNS.2-153.

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. Available online at: http://mcfns.com/index.php/Journal/article/view/ MCFNS.8.14/8.14.

Chapman, J., I. Hung, and J. Tippen. 2010. Evaluating TIFFS (Toolbox for LiDAR Data Filtering and Forest Studies) in deriving forest measurements from LiDAR Data. Mathematical and Computational Forestry & Natural-Resource Sciences. 2(2): 145–152. Retrieved from http://mcfns.com/index.php/Journal/article/view/MCFNS.2-145. Last accessed on Mar. 30, 2016.

Kauffman, J, and S 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. Available online at: http://mcfns.com/index.php/Journal/article/view/MCFNS.8.4/8.4.

Lipscomb, D., and Baldwin, R. 2010. Geoprocessing solutions developed while calculating the mean human footprint™for federal and state protected areas at the continent scale. Mathematical and Computational Forestry & Natural-Resource Sciences 2(2): 138–144. Retrieved from http://mcfns.com/index.php/Journal/article/view/MCFNS.2-138.

Lowe, R., and C. Cieszewski. 2014. Multi-source K-nearest neighbor, mean balanced forest inventory of Georgia. Mathematical and Computational Forestry & Natural-Resource Sciences. 6(2): 65–79. Retrieved from http://mcfns.com/index.php/Journal/article/view/6_65/184.

Williams, T., B. Williams, and B. Song. 2014. Creation of GIS data requirements for FARSITE modeling of an historic wildfire. Mathematical and Computational Forestry & Natural-Resource Sciences 6(2): 80–88. Retrieved from http://mcfns.com/index.php/Journal/article/view/6_80/183.