



7th

**Southern Forestry and Natural Resources
GIS Conference**

December 7 - 9, 2009
Athens, Georgia



7th Southern Forestry and Natural Resources GIS Conference

Conference Program

Conference Description and Objectives

The Southern Forestry and Natural Resources GIS Conference is a series of biennial meetings that have been hosted by the Daniel B. Warnell School of Forestry and Natural Resources, and the Georgia Center for Continuing Education Conference Center & Hotel, University of Georgia. The Conference generally includes topics related to the use of GIS and other geospatial technologies in forestry and natural resource management. The objective of the conference is to bring together managers and scientists to discuss research and issues related to forestry and natural resources using geospatial technologies in the southern United States and beyond. The 6th Southern Forestry and Natural Resources GIS Conference includes presentations pertaining forest inventory, wildlife habitat analysis and assessment, forest management, aquatic systems, landscape ecology, land use analysis, remote sensing and image analysis, species composition and distribution, and forest extension and education.



Conference Program in Brief

Monday, December 7

12:00 - 4:00	PM	LandMark Systems & Silvics Solutions, LLC – Field Technology Demonstration (Whitehall Forest, transportation provided from Georgia Center Lobby)
5:00 - 7:00	PM	Onsite Registration – Conference Registration Desk
6:00 - 8:00	PM	Social Mixer (Kellogg Concourse, 2 nd Floor)

Tuesday, December 8

7:00 - 8:30	AM	Onsite Registration – Conference Registration Desk
8:00 - 9:00	AM	Invited symposium lecture: – Dr. Robert Weih, University of Arkansas (Room K/L)
9:00 - 10:15	AM	Concurrent Sessions Session 1: <i>Remote Sensing, Tools, and GIS for Hydrological Applications</i> (Room Q) Session 2: <i>Remote Sensing for Forest Inventory Applications I</i> (Room K/L)
10:15 - 10:30	AM	Break (Kellogg Concourse)
10:30 - 11:45	AM	Concurrent Sessions Session 1: <i>Remote Sensing for Forest Inventory Applications II</i> (Room K/L) Session 2: <i>Programming, Tools, and Technology I</i> (Room Q)
11:45 - 1:15	PM	Lunch (furnished; Kellogg Concourse)
1:15 - 2:30	PM	Concurrent Sessions Session 1: <i>Remote Sensing for Disturbance Applications</i> (Room Q) Session 2: <i>Programming, Tools, and Technology II</i> (Room K/L)
2:30 - 2:45	PM	Break (Kellogg Concourse)
2:45 - 4:25	PM	Concurrent Sessions Session 1: <i>Species Composition and Distribution I</i> (Room K/L) Session 2: <i>Programming, Tools, and Technology III</i> (Room Q)
4:30 - 6:30	PM	Poster Session & Exhibits, Reception (Kellogg Concourse)

Wednesday, December 9

8:35 – 9:50	AM	Concurrent Sessions Session 1: <i>Wildlife Habitat Analysis and Assessment</i> (Room Q) Session 2: <i>Species Composition and Distribution II</i> (Room K/L)
9:50 - 10:15	AM	Break (Kellogg Concourse)
10:15 - 11:05	AM	Primary Session: <i>Landscape Ecology and Land Use Analysis</i> (Room K/L)
11:05 - 12:00	PM	Closing Remarks, Awards, Door Prizes (Room K/L)



Acknowledgements

Conference Sponsors

ESRI
Orbis Inc.
Silvics Solutions, LLC

Conference and Program Chair

Nate Nibbelink, University of Georgia (nate@warnell.uga.edu)

Proceedings Chair

Krista Merry, University of Georgia (kmerry@warnell.uga.edu)

Sponsorship Inquiries and Logistics

Pete Bettinger, University of Georgia (pbettinger@warnell.uga.edu)

Web Master

Matt Howell, Southern Region Extension Forestry (mhowell@sref.info)

Conference Planning Committee

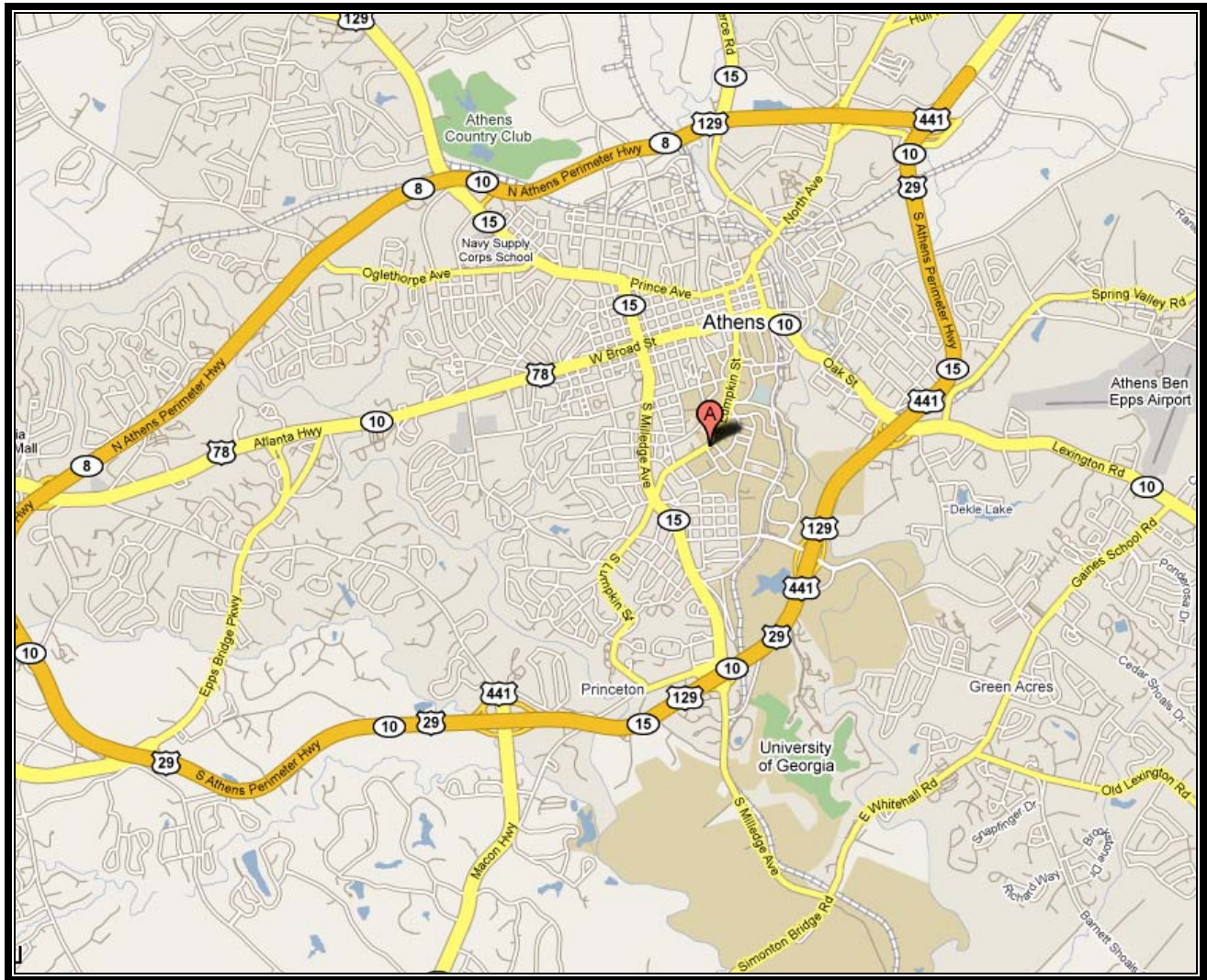
Bill Hubbard – Southern Regional Extension Forestry, UGA
Bo Song – Clemson University
Jeff Hepinstall – University of Georgia
John Kushla – Mississippi State University
Krista Merry – University of Georgia
Luke Worsham – University of Georgia
Matt Howell – Southern Regional Extension Forestry, UGA
Nate Nibbelink – University of Georgia
Pete Bettinger – University of Georgia
Songlin Fei – University of Kentucky
Thom Litts – Georgia Department of Natural Resources
Tripp Lowe – University of Georgia



Information for Attendees

Conference location

Georgia Center for Continuing Education
University of Georgia
1197 S. Lumpkin St.
Athens, GA 30602





Detailed Conference Program

Monday, December 7

- 12:00 - 4:00 PM LandMark Systems & Silvics Solutions, LLC – Field Technology Demonstration (Whitehall Forest, transportation provided from Georgia Center Lobby)
5:00 - 7:00 PM Onsite Registration – Conference Registration Desk
6:00 - 8:00 PM Social Mixer (Kellogg Concourse)

Tuesday, December 8

- 7:00 - 8:30 AM Onsite Registration – Conference Registration Desk
-

8:00 - 9:00 AM Keynote Speaker: – Dr. Robert Weih, University of Arkansas

Title: "Evolution of Geospatial Technologies from Pixels and Polygons to Information"

Dr. Weih will discuss how geospatial technologies have gone from backroom GIS and remote sensing users (a little history) to everyday workflows and business. Drawing from examples of work on biomass modeling, wildlife habitat, historic vegetation, and 3D forest visualization (at the University of Arkansas – Spatial Analysis Lab), Dr. Weih will illustrate how spatial technologies let us see the whole landscape so we can obtain a better understanding of forest processes.

Concurrent Session I: Remote Sensing, Tools, and GIS for Hydrological Applications (Room Q)

- 9:00 – 9:25 AM *Evaluating the Use of Low-Cost Side Scan Sonar to Map Aquatic Habitat on the Lower Flint River, Georgia, USA.* Wes Tracy*. Adam J. Kaeser, and Thomas L. Litts
- 9:25 – 9:50 AM *Operational Drought Characterization using Thermal Remote Sensing: A Case Study in Georgia's Altamaha River Watershed.* Jennifer Jacobs*, Minha Choi, Shirish Bhat, Martha Anderson, David Bosch, and John Mecikalski
- 9:50 – 10:15 AM *Dynamic Spatial Information Interface for USGS Monitoring Sites.* Ibrahim Demir* and M. Bruce Beck

Concurrent Session II: Remote Sensing for Forest Inventory Applications I (Room K/L)

- 9:00 – 9:25 AM *Comparative Analysis of Spectral Unmixing and Neural Networks for Estimating Small Diameter Tree Above-Ground Biomass in the State of Mississippi.* Mohan P. Tiruveedhula*, Joseph Fan, Ravi R. Sadasivuni, Surya S. Durbha, and David L. Evans
- 9:25 – 9:50 AM *Development of a Spatial Model to Assess Ecological Condition and Prioritize Timber and Fuel Treatments for the Osceola National Forest.* Jason Drake*, Erik Johnson, Carl Petrick, Ivan Green, and Sparkle Malone
- 9:50 – 10:15 AM *Evaluation of LiDAR Derived Estimations of Forest Measurement.* John Chapman*, I-Kuai Hung, and Jeffrey Tippen
-

10:15-10:30 AM Break (Kellogg Concourse)

Concurrent Session I: Remote Sensing for Forest Inventory Applications II (Room K/L)

- 10:30 – 10:55 AM *Combining Landsat Imagery and FIA Data: Examining Wood Supply in Southern Wood Basins.* Curtis A. Collins* and Ruth Cardinal Seawell
- 10:55 - 11:20 AM *Estimating Forest Structural Diversity in the Southern Appalachian Mountains Using LiDAR and its Implications in Mapping Hazardous Fuels for Wildfire.* Ross J. Phillips*, Thomas A. Waldrop, and Christopher J. Post
- 11:20 – 11:45 AM *An Index for Carbon Release Potential Following a Catastrophic Wind Event.* Michael K. Crosby*, David W. Wilkinson, T. Luke Jones, Emily B. Schultz, and Thomas G. Matney

Concurrent Session II: Programming, Tools, and Technology I (Room Q)

- 10:30 – 10:55 AM *Constructing and Evaluating a Wetland and Land Use History Database for the Dougherty Plain, Georgia.* Jeffrey Hepinstall-Cymerman and Glenn Martin*
- 10:55 - 11:20 AM *A GIS-based Southern Pine Beetle Spot Growth Model for Evaluating the Effect of Direct Control – Salvage Operation.* Chiao-Ying Chou*, Bo Song, Rafael De La Torre, Tom M. Williams, Roy L. Hedden, Kier D. Klepzig, Danny C. Lee, and Carl C. Trettin
- 11:20 – 11:45 AM *One Year's Experience with a Recreation-Grade GPS receiver.* Pete Bettinger*
-

11:45 - 1:15 PM Lunch (Box lunches provided; Kellogg Concourse)

Concurrent Session I: Remote Sensing for Disturbance Applications (Room Q)

- 1:15 – 1:40 PM *Mapping of Hurricane Katrina Forest Damage in South Mississippi using MIFI data and GIS.* Mark Garrigues*, Zhaofei Fan and David Evans
- 1:40 – 2:05 PM *Intensity of Tropical Cyclones Along Portions of the Southeastern U.S. coasts.* Pete Bettinger*
- 2:05 – 2:30 PM *Modeling Forest Damage from Hurricanes.* Krista Merry*

Concurrent Session II: Programming, Tools, and Technology II (Room K/L)

- 1:15 – 1:40 PM *Universal Modular GIS – Write Once and Use Everywhere GIS tools.* Greg Krakow*
- 1:40 – 2:05 PM *KNN Gapfill method to repair SLC-off Landsat ETM+ satellite imagery.* Roger C. Lowe III* and Chris J. Cieszewski
- 2:05 – 2:30 PM *Blending Technology with Forestry – Unlimited Applications.* Gerhard Sehnalek*
-

2:30 - 2:45 PM Break (Kellogg Concourse)

Concurrent Session I: Species Composition and Distribution I (Room K/L)

- 2:45 – 3:10 PM *Probability Mapping for Species Conservation on Alabama's Gulf Coast.* Dawn Lemke*, Wubishet Tadesse, Tommy Colman, and Jennifer Brown
- 3:10 - 3:35 PM *Here Today, Gone Tomorrow: Projected Loss of a Salamander Diversity Hotspot as a Consequence of Global Climate Change.* Joseph Milanovich*, Nathan P. Nibbelink, William E. Peterman, and John C. Maerz
- 3:35 – 4:00 PM *Impact of Ecological and Socioeconomic Determinants on the Spread of Tallow Tree in Southern Forest Lands.* Yuan Tan*, Zhaofei Fan
- 4:00 – 4:25 PM *Threats of Major Nonnative Invasive Plants in the Southern Forest Lands: Condition, Extent and Potential Driving Factors.* Zhaofei Fan*, Xiuli Fan

Concurrent Session II: Programming, Tools, and Technology III (Room Q)

- 2:45 – 3:10 PM *Leaf-Off Accuracy of Mapping-Grade GPS Receivers.* Pete Bettinger*, Michael Ransom, James Rhynold
- 3:10 - 3:35 PM *A Comparison of Four Sampling Methods to Estimate Soil Carbon Content.* Luke Worsham*, Daniel Markewitz, Nathan Nibbelink, Larry West
- 3:35 – 4:00 PM *Zonal and Large Data Set Solutions Developed While Calculating the Mean Human Footprint™ for Protected Areas at the Continent Scale.* Donald J. Lipscomb* and Robert F. Baldwin
- 4:00 – 4:25 PM *A GIS Approach to Property and Land Records.* Greg Triplett* and Heather Russell
-

4:30 - 6:30 PM Poster Session & Exhibits – Reception (Kellogg Concourse)

Posters: Presenters 1-5, please stand by your posters for the first hour (4:30-5:30), and presenters 6-10, please stand by your posters in the second hour (5:30-6:30).

(1) *Animal Space Use for ArcGIS: Animal Space Use for ArcGIS: Generating Animal Home Range and Core Use Areas Using VBA and ArcObjects.* John Carpenter

(2) *Land Use and Suitability Analysis for Urban Recreational Development using AHP Method in Zone 9 of Isfahan City.* M. Mirahsani and A. Rodzi Mahmud

(3) *Modelling of Soil Moisture in the Bankhead National Forest*. Na-Asia Ellis, Dawn Lemke, Wubishet Tadesse, Callie Schweitzer, and Joe Gardinski

(4) *Predicting the Occurrence of Invasive Plants in the Cumberland Plateau and Mountain Region: Integration of Forestry Inventory Data, Geospatial Information System and Statistical Modeling Tools*. Dawn Lemke, Philip Hulme, Jennifer Brown, and Wubishet Tadesse

(5) *Mapping Habitat in Ichawaynochaway Creek Using Low-Cost Side Scan Sonar*. Adam J. Kaeser and Thom Litts

(6) *Predicting Carbon Content Within a Longleaf Pine Ecosystem: Kriged Prediction Mapping*. Claire Ike, Daniel Markewitz, and Lindsay Boring

(7) *Quantification of a Boundary Shape: A Scale Dependent Method for Determining Patch Boundary Convexity*. Shannon Albeke, Nathan P. Nibbelink, Lan Mu, and Daniel J. Ellsworth

(8) *Geospatial Analysis and Genetic Relatedness in *Elliottia racemosa* (Georgia plume) to Determine Conservation Practices*. Justin Porter

(9) *GIS for Analyzing Watershed Study's Inconclusive Results*. David W. Long, William B. Patterson, and Mark Gibson

(10) *Louisiana Tech Web GIS Applications*. Wesley Palmer, Jackson Mathews, Kenzie Worsham, David Druen

Wednesday, December 9

Concurrent Session I: Wildlife Habitat Analysis and Assessment (Room Q)

8:30 – 8:55 AM *Landscape Features Affecting Northern Bobwhite Nest Fate by Specific Failure Causes in the Southeastern, USA*. Susan N. Ellis-Felege*, Shannon E. Albeke, William E. Palmer, D.C. Sisson, Michael J. Conroy, and John P. Carroll

8:55 - 9:20 AM *Linear Referencing and Dynamic Segmentation as a Framework for Spatially-Explicit Animal Movement Modeling in Linear Systems*. Shannon E. Albeke* and Nathan P. Nibbelink

9:20 – 9:45 AM *Spatially explicit models of thermal experience help assess survival probability for potentially invasive species*. Nathan P. Nibbelink*, Julie Wilson, Shannon Albeke, Kevin McAbee, and Douglas Peterson

Concurrent Session II: Species Composition and Distribution II (Room K/L)

8:30 – 8:55 AM *Geospatial Tools for Resource Management Decisions: Geovisualization of Hemlock Dieback in Great Smoky Mountains National Park*. Hunter Allen*, Marguerite Madden and Thomas Jordan

8:55- 9:20 AM *Modeling Physical and Biological Factors Related to Capuchin Monkey Tool Use in the Cerrado of Northeastern Brazil*. Marguerite Madden* and Thomas Jordan

9:20 – 9:45 AM *Increasing Community Tree Assessments with Trained Adult Volunteers*. David Berle*

9:45 – 10:00 AM Break (Kellogg Concourse)

Primary Session: Landscape Ecology and Land Use Analysis (Room K/L)

10:00 – 10:25 AM *Geospatial Analysis of Forest Patterns Related to Environmental History of Wormsloe State Historic Site. Thomas Jordan* and Marguerite Madden*

10:25 – 10:50 AM *Using Geospatial Data and Principles of Landscape Ecology to Identify Field Sites. Jeffrey Hepinstall-Cymerman* and Michael Parrish.*

11:00 – 11:45 AM Closing Remarks, Awards, Door Prizes (Room K/L)
