Southern Research Station, Forest Inventory & Analysis

The Inventory

An Update Concerning the SRS FIA Program

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Forest Inventory and Analysis
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SRS FIA Information Update (September 2010)

Within this issue is a description of a newly initiated effort that combines the FIA Program and the Experimental Forests and Ranges (EFRs) components of the USDA Forest Service Research and Development (FS R&D). The FS R&D national system of 81 EFRs is a unique and extraordinarily important asset in the Nation's natural resources research infrastructure. The hope is to integrate both of these programs and build on their strengths. This is especially important as the questions relating to climate change are increasing daily.

Also in this edition is a reminder concerning registration for the FIA Symposium 2010: "Monitoring Across Borders." The Tenth FIA Symposium will be held in Knoxville, TN from October 5–7, 2010. Each day's session will begin with a plenary session of contemporary topics followed by other scientific sessions. I encourage you to consider attending this symposium. The goals of the Tenth FIA Symposium are to:

- Highlight cutting-edge mensuration, modeling, and related science,
- Present ways that FIA has aided in policy and management decisions,
- Provide a forum for linking issue-focused analyses with techniques development,
- Showcase collaborative efforts and foster continued work with FIA partners,
- Display state-of-the-art science and tools, and
- Communicate utility of FIA data and analyses to the broader user community.

If you have any questions regarding FIA, please submit those questions to Charlene Walker (cwalker@fs.fed.us) and we will answer your questions in a future issue of *The Inventory*. Thank you for your interest in FIA and please let us know how we may serve you in the future.

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FIA and Experimental Forests and Ranges Studies

The FIA Program and the Experimental Forests and Ranges (EFRs) are two of the baseline programs of the USDA Forest Service Research and Development (FS R&D). The FS R&D system of 81 EFRs is a unique and extraordinarily important asset in the Nation's natural resources research infrastructure. Many of these permanent research sites were established more than 100 years ago.

Discussions began in 1990s to develop a national intensive site program (ISM). The concept behind ISM was the intensive (geospatially and temporally) measurement and analysis of key components and processes of the most important forest and grassland ecosystems at sites that are biologically representative of those ecosystems. Although the concept was sound, this plan was not implemented.

Recently due to the increased interest in climate change, these concepts were revisited. Under FIA, the concept of ISM has evolved to represent increasing the density of forest inventory plots within a given area, and/or conducting more detailed measurements of ecological attributes at a given plot. FIA ISM has three key objectives:

1. to measure similar variables in a consistent manner across a concentrated network of sites so as to quantify better patterns in ecosystem attributes and dynamics;

2. to identify threshold levels of key ecological indicators that can then be applied on the standard FIA plot network; and

3. to provide background baseline monitoring information for detection of patterns that can be quantitatively linked to changes in climate, forest health, nutrient dynamics, and vegetation dynamics over time.

Sites from the EFR network were chosen to implement this strategy. These sites were selected with the five selection criteria identified to guide site selection:

1) locations which have long-term data on forest stand dynamics, hydrology, nutrient dynamics, and/or carbon fluxes;

2) the absence of any existing quantitative vegetation data across forested landscapes, and where an intensified plot grid could provide data to for an early warning system;

3) sites in areas expected to be highly sensitive to climate changes;

4) sites that help assure broad-scale coverage across widespread gradients of conditions; and

5) practical or administrative considerations in the current fiscal year that influence where the initial implementation effort could be conducted.

Key questions for climate change research are outlined in the Forest Service Global Change Research Strategy issued in FY 2009. Recent plans have identified four important data gaps where additional data collected through ISM can make important contributions to detecting and understanding climate change impacts on forests and rangelands:

- Forest stand dynamics
- Watershed regimens
- Nutrient dynamics
- Carbon cycle processes

Within the Southern United States, three EFRs will have FIA plots established in FY10 and FY11 - Coweeta, Calhoun, and Santee. These three EFRs were selected as they represent a "mountains-to-sea" gradient. Within each of these three EFRs plots will be installed that represent a moisture gradient within each EFR. A total of approximately 50 plots per EFR will be established. As SRS FIA has implementation responsibility for Puerto Rico and the U.S. Virgin Islands, plots will be installed in cooperation with the International Institute of Tropical Forestry at Luquillo Experimental Forest, Estate Thomas Experimental Forest, and San Juan Urban Long-Term Research Area.

For more information, please contact Bill Burkman at 865-862-2073 or bburkman@fs.fed.us or Tom Brandeis at 865-862-2030 or tjbrandeis@fs.fed.us.

Tenth FIA Symposium: An Update

The FIA Symposium 2010 Organizing Committee is reminding you of the Tenth FIA Symposium: "Monitoring Across Borders." The FIA Symposium will be 3 days, each beginning with a plenary session of contemporary topics followed by other scientific sessions. The FIA Symposium will be held in Knoxville, TN from October 5–7, 2010. This symposium is jointly sponsored with the Southern Mensurationists: (http://www.mensurationists.com/soma/mainframe.htm).

Updates:

- Registration deadline has been extended to September 17, 2010.
- There is still time to submit a poster; however please send your abstract by September 17, 2010 if you want it included in the program. Posters will be available for viewing throughout the meeting.
- The Society of American Foresters is co-sponsoring the meeting and offering CFE Credits.
- A special FIA Tools session is scheduled for Wednesday evening @ 7:00 PM.

For more details regarding the session please visit http://www.fia.fs.fed.us/symposium/.

For more information, contact Will McWilliams at 610-557-4050 or wmcwilliams@fs.fed.us.

Status of Current Field Inventories

State	Cycle start date	Subcycle start date	Cycle and subcycle of current inventory	Percent of current subcycle collection completed
Alabama	2005	Sept-09	9-1	96
Arkansas	2005	Nov-09	9-5	79
Florida	2008	Sept-09	9-4	90
Georgia	2009	Sept-09	10-2	99
Kentucky	2010	July-10	7-1	14
Louisiana	2009	July-10	8-2	10
Mississippi	2008	Oct-09	9-2	91
North Carolina	2008	Aug-10	9-3	3
Oklahoma (east)	2010	Jan-10	8-1	63
Oklahoma (west)	2009	Jan-10	2-2	45
Puerto Rico	2006	Apr-09	4-4	100
South Carolina	2006	Jan-10	10-4	68
Tennessee	2009	Dec-09	9-1	67
Texas (east)	2008	July-10	9-3	8
Texas (west)	2004	Apr-10	1-7	16
U.S. Virgin Islands	2009	Aug-09	2-1	100
Virginia	2007	Apr-10	9-3	61

Information compiled August 26, 2010.

For more information, contact Dale Trenda at 865-862-2039 or dtrenda@fs.fed.us.

FY2010 Research Publications Published Since June 2010

Gartner, Dave; Schultz, Bethany. 2009. Section 6: Vegetation diversity and structure indicator. In: FIA national assessment of data quality for forest health indicators. Gen. Tech. Rep. NRS–53. Newtown Square, PA: U.S. Department of Agriculture Forest Service, Northeastern Research Service: 55–66.

Harper, Richard. 2010. East Oklahoma, 2008 forest inventory and analysis factsheet. e-Science Update SRS–025. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 4 p.

Oswalt, Christopher M.; Oswalt, Sonja N. 2010. The facilitation and impacts of *Microstegium vimineum* colonization in an eastern hardwood forest. In: Proceedings of the 14th biennial southern silvicultural research conference. Gen. Tech. Rep. SRS–121. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station: 103–106.

Randolph, KaDonna C. 2010. Equations relating compacted and uncompacted live crown ratio for common tree species in the South. Southern Journal of Applied Forestry. 34(3): 118–123.

Randolph, KaDonna C.; Campbell, Sally J.; Christensen, Glenn. 2010. Descriptive statistics of tree crown condition in California, Oregon, and Washington. Gen. Tech. Rep. SRS–126. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 19 p.

Randolph, KaDonna C.; Morin, Randall S.; Steinman, Jim. 2010. Descriptive statistics of tree crown condition in the Northeastern United States. Gen. Tech. Rep. SRS–124. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 21 p.

Randolph, KaDonna C.; Morin, Randall S.; Steinman, Jim. 2010. Descriptive statistics of tree crown condition in the North Central United States. Gen. Tech. Rep. SRS–125. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 21 p.

Randolph, KaDonna C.; Thompson, Mike T. 2010. Descriptive statistics of tree crown condition in the United States Interior West. Gen. Tech. Rep. SRS–127. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station: 118–123.

Roesch, Francis A.; Van Deusen, Paul C. 2010. Anomalous diameter distribution shifts estimated from FIA inventories through time. Forestry. 83(3): 269–276.

Roesch, Francis A.; Van Deusen, Paul C. 2010. Anomaly detection for analysis of annual inventory data: a quality control approach. Southern Journal of Applied Forestry. 34(3): 131–137.

Salajanu, Dimitru; Jacobs, Dennis M. 2010. Contribution of climate, soil and MODIS predictors when modeling forest invasive species distribution using forest inventory data. In: Proceedings of ASPRS 2010 annual conference. Opportunities for emerging geospatial technologies. Bethesda, MD: American Society for Photogrammetry and Remote Sensing: 1–8.

Van Deusen, Paul C.; Roesch, Francis A. 2010. Application of mapped plots for single-owner forest surveys. Journal of Forestry. 107(8): 414–418.

Van Deusen, Paul C.; Roesch, Francis A. 2010. Estimating forest conversion rates with annual forest inventory data. Canadian Journal of Forest Research. 39: 1993–1996.

Southern FIA Scientists Focus on Invasive Species

Nonnative invasive plant species pose a threat to forest resources throughout the southeast. Many invasive plants have the ability to alter ecosystem characteristics by changing soil chemistry and altering plant community structure, altering disturbance regimes like fire frequency and duration, and changing hydrologic regimes in wetland-associated systems. In addition to environmental impacts, invasive plant species control efforts cost the United States as much as 25 billion dollars annually.

The southern FIA program began monitoring nonnative invasive plant species in 2001 in response to a growing desire to track potential forest health threats on U.S. forest land. No other program in the United States provides a mechanism for monitoring the spread of common invasive species across both public and private lands on a regularly updated basis. The invasive plants selected for survey are regionally recognized exotic pest plants known to invade interior forest stands and forest edges, canopy gaps and streamsides. FIA collects presence information and estimates of cover for invasive trees, shrubs, vines, grasses, canes, forbs, and ferns.

Southern Research Station FIA scientists have used the FIA data combined with independent research to generate products that have received widespread recognition in recent years, including the recognition of one paper in August 2010 as one of the scientific journal *Forest Ecology and Management's* "Top 50 most cited papers" from 2007 to 2010. Organizations such as the Society of American Foresters, in their publication *The Forestry Source*, have highlighted invasive plant research, also published in *Forest Ecology and Management*, conducted by SRS FIA scientists. Other recent products include the development and implementation of invasive species maps, available in print-ready format online; a report highlighting the expansion of Chinese tallowtree (*Triadica sebifera*) in Texas, Louisiana, and Mississippi which was featured in multiple media publications including the Louisiana Public Radio station "Red River Rocks," along with multiple proceedings, papers, and posters.

Further reading:

Oswalt, Sonja N. 2010. Chinese tallow (*Triadica sebifera* (L.) Small) population expansion in Louisiana, East Texas, and Mississippi. Res. Note–SRS–20. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 8 p.

Oswalt, Christopher M.; Oswalt, Sonja N. 2010. The facilitation and impacts of *Microstegium vimineum* colonization in an eastern hardwood forest. Gen. Tech. Rep. SRS–121. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station: 103–106.

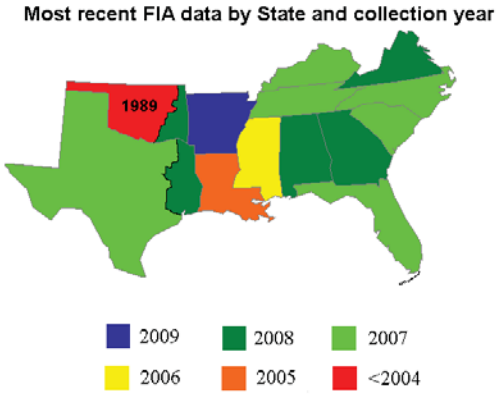
Miller, James H.; Chambliss, Erwin B.; Oswalt, Christopher M. 2008. Maps of occupation and estimates of acres covered by nonnative invasive plants in southern forests using SRS FIA data posted on March 15, 2008. http://www.invasive.org/fiamaps/.

Oswalt, Christopher M.; Oswalt, Sonja N. 2007. Winter litter disturbance facilitates the spread of the nonnative invasive grass *Microstegium vimineum* (Trin.) A. Camus. Forest Ecology and Management. 249: 199–203.

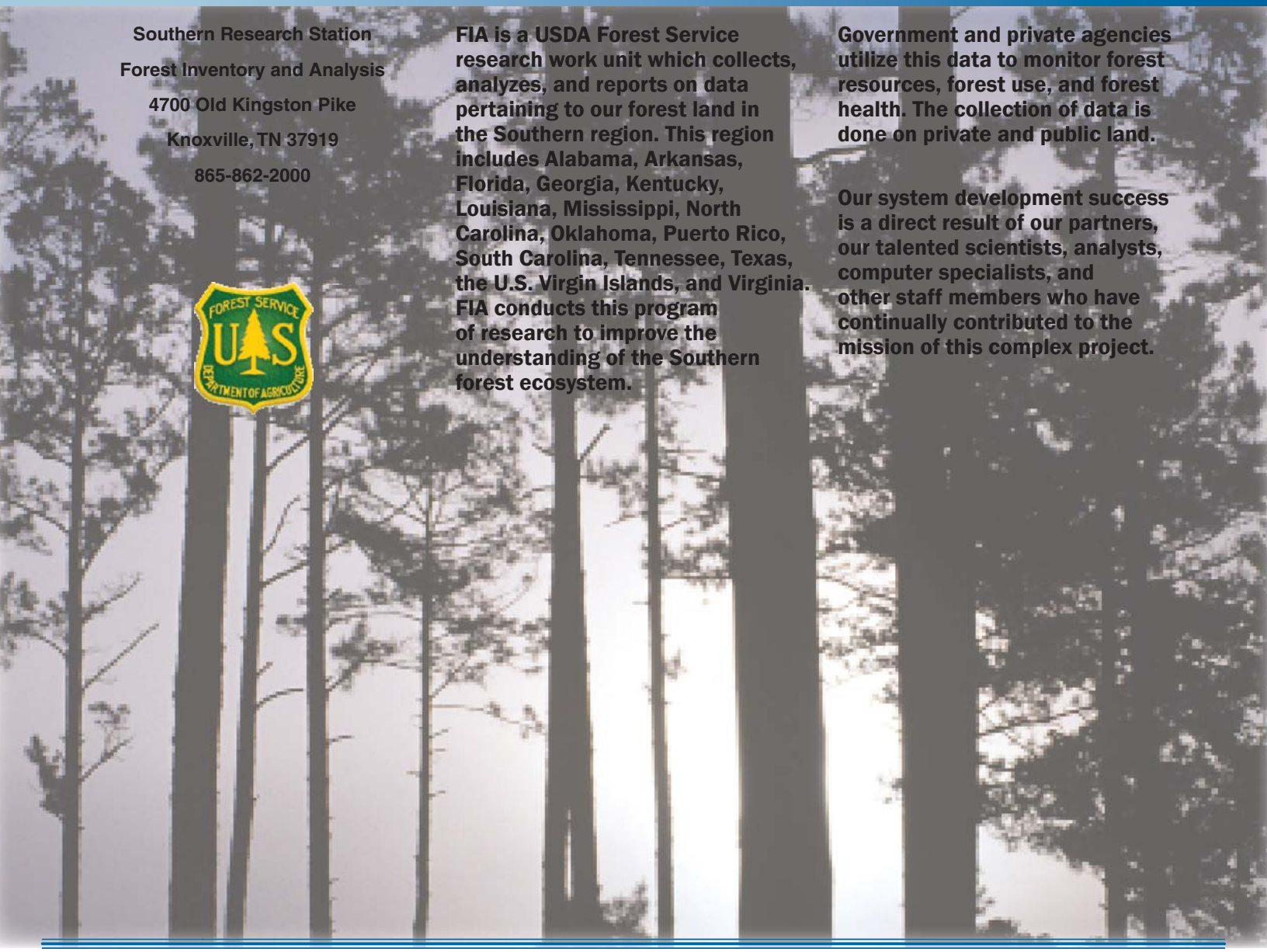
Oswalt, Christopher M.; Oswalt, Sonja N.; Clatterbuck, Wayne K. 2007. Effects of *Microstegium vimineum* (Trin.) A. Camus on native woody species density and diversity in a productive mixed-hardwood forest in Tennessee. Forest Ecology and Management. 242: 727–732.

For more information, contact Chris Oswalt at 865-862-2068 or coswalt@fs.fed.us.

Current Status of FIA Data Posted



For more information, contact Ali Conner at 865-862-2228 or aconner@fs.fed.us.



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FIA is a USDA Forest Service research work unit which collects, analyzes, and reports on data pertaining to our forest land in the Southern region. This region includes Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, Puerto Rico, South Carolina, Tennessee, Texas, the U.S. Virgin Islands, and Virginia. FIA conducts this program of research to improve the understanding of the Southern forest ecosystem.

Government and private agencies utilize this data to monitor forest resources, forest use, and forest health. The collection of data is done on private and public land.

Our system development success is a direct result of our partners, our talented scientists, analysts, computer specialists, and other staff members who have continually contributed to the mission of this complex project.

National and Southern FIA Web sites of Interest

National FIA Web site: http://www.fia.fs.fed.us
National FIA database available at: http://fia.fs.fed.us/tools-data/other/default.asp
National Timber Product Output (TPO) database available at: http://srsfia2.fs.fed.us/
National Woodland Owner Survey Web site: http://www.fia.fs.fed.us/nwos/
Information specific to Southern States: http://srsfia2.fs.fed.us/
Electronic copies of SRS FIA publications at: http://www.srs.fs.usda.gov/pubs/