

Biomass

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Overview

- Biomass Availability
- Biomass Harvesting



BIOMASS AVAILABILITY

Biomass Availability

<http://srsfia2.fs.fed.us/>

Southern Research Station, Forest Inventory & Analysis

The Inventory

An Update Concerning the SRS FIA Program

Issue 22
January 2014

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SRS FIA Information Update

Biomass! I am sure that you have been hearing about all of the new facilities that have been planned, and in many cases built and operational, across the South that are focusing on utilizing woody biomass. Many of these facilities are/will be producing pellets. Why the interest in the South? In spite of the economic downturn in the economy in the last 3 or 4 years, the South is still the "woodbasket" of the United States. Yes, production during this time period was down by 20 to 25 percent on average across all products, some more than others. For more details, please see "Economic dynamics of forests and forest industries in the Southern United States" by Brandeis and others at <http://www.srs.fs.usda.gov/pubs/40452>.

What is the Forest Inventory and Analysis (FIA) Program and specifically the Southern Research Station (SRS) FIA Program doing in the arena of biomass? Nationally we have been working with six university partners, some forest industry organizations, and groups across the Forest Service to develop **new biomass equations** that can be applied to the FIA database. These new equations will not use cubic foot to weight conversions but will be based on direct relations to height and diameter values to weight. In addition, estimates are being developed for the branches, foliage, etc. in addition to the traditional merchantable portions of trees. This work has been going on for 2 years and will continue into the next few years. Of course this work will also directly relate to the calculation of all of the carbon estimates from FIA data.

Also at the national level, the **Timber Products Output (TPO) database and processing system** have been modified specifically to identify **biomass/bioenergy facilities in the data collection and reporting aspects**. The 2013 TPO data collection will include these new data elements. The **utilization study data collection (data collected on active logging sites)**, will also include data elements on utilization rates for bioenergy harvests.

One arena that needs some additional study is the sustainability of woody biomass harvesting. Some work on this has been done, but there are additional questions. In some cases, the raw material is woody biomass that is not used for traditional forest products or under used. In other cases, there may be a direct competition between traditional forest products and woody biomass use. I hope that we in SRS FIA can investigate the growth and removal rates in the next few years.

As always, if you have any technical questions regarding FIA, please submit those questions to Charlene Walker (cwalker@fs.fed.us) and we will address them 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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Biomass Availability

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A Forester in the South

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Status of Current Field Inventories

State	Cycle Start Date	Subcycle Start Date	Cycle and Subcycle of Current Inventory	% of Current Subcycle Collection Completed
Louisiana	2009	3/2013	8/2013	84
Mississippi	2009	8/2013	9/2014	28

<http://srsfia2.fs.fed.us/>



Biomass Availability

What is the feedstock?

- Logging residues from pulpwood?
- Early thinnings in pine plantations?
- Managed fuelwood harvesting
 - SRWC
 - Intensive plantation management
- Understory removals, stand cleaning?



Biomass Availability



17% residues from clean
chipping operation

Biomass Availability



Biomass Availability



Biomass Availability

Feedstock Quality

- Ash Content
- Moisture Content
- Chip size
 - residence time
- Chipped vs. Hogged
 - Handling/flow



Biomass Availability

Feedstock Quality



3-Knife Chipper – Whole Trees – Ash Content



Biomass Availability

Feedstock Quality



Ground vs. Chipped

Biomass Availability

Feedstock Quality



Biomass Availability

Feedstock Quality



Biomass Availability

Feedstock Quality

- Dixie Pellet
- Green Circle
- AL Power Co-Milling



BIOMASS HARVESTING

Biomass Harvesting



Biomass Harvesting



Biomass Harvesting



Treelength operation: 9:1



Biomass Harvesting Scattered Residues



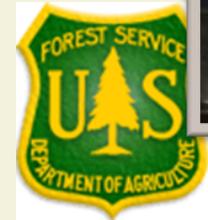
Payload = 1/3 solid wood

Biomass Harvesting Scattered Residues



Biomass Harvesting Scattered Residues

- Short Rotation Woody Crops



Biomass Harvesting Scattered Residues

- Short Rotation Woody Crops



Willow test site in MS



4-year-old Cottonwood in LA

Equipment size
Planting spacing – row width
Dual-row



Biomass Harvesting

Whole Tree Harvest

- No sorting in woods
- Loading productivity?
- Impact on load trimming time?
- Less dense load, payload impacts?
- Trailer weight?



LOGGING COMPANY TRENDS

Logging Businesses

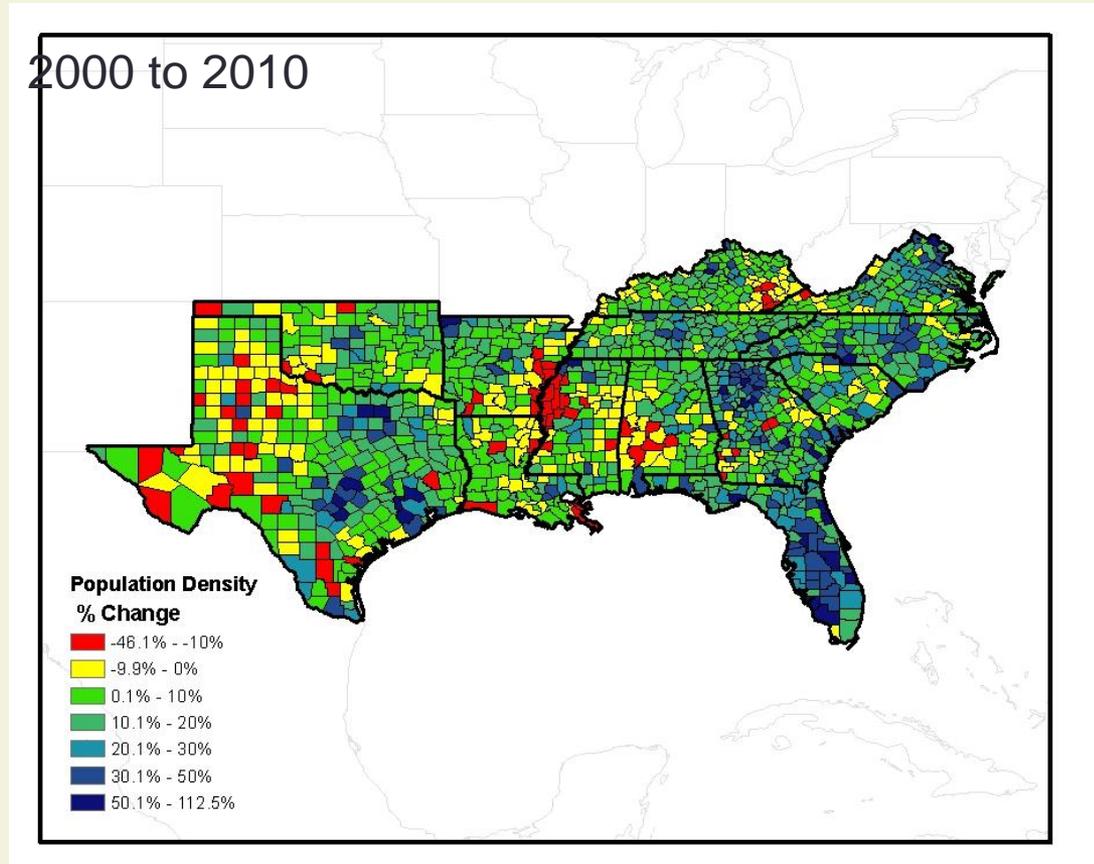
State	2003/2004 Number of Timber & Logging Businesses	2009 Number of Timber & Logging Businesses	% Change
Alabama	822	626	-24%
Arkansas	523	382	-27%
Florida	316	242	-23%
Georgia	698	596	-15%
Kentucky	166	88	-47%
Louisiana	466	350	-25%
Mississippi	604	488	-19%
North Carolina	643	472	-27%
Oklahoma	46	36	-22%
South Carolina	456	347	-24%
Tennessee	199	146	-27%
Texas	305	257	-16%
Virginia	463	385	-17%
Total Businesses	5707	4415	

businesses lost in 6 years **1,292**
% businesses lost **22.64%**

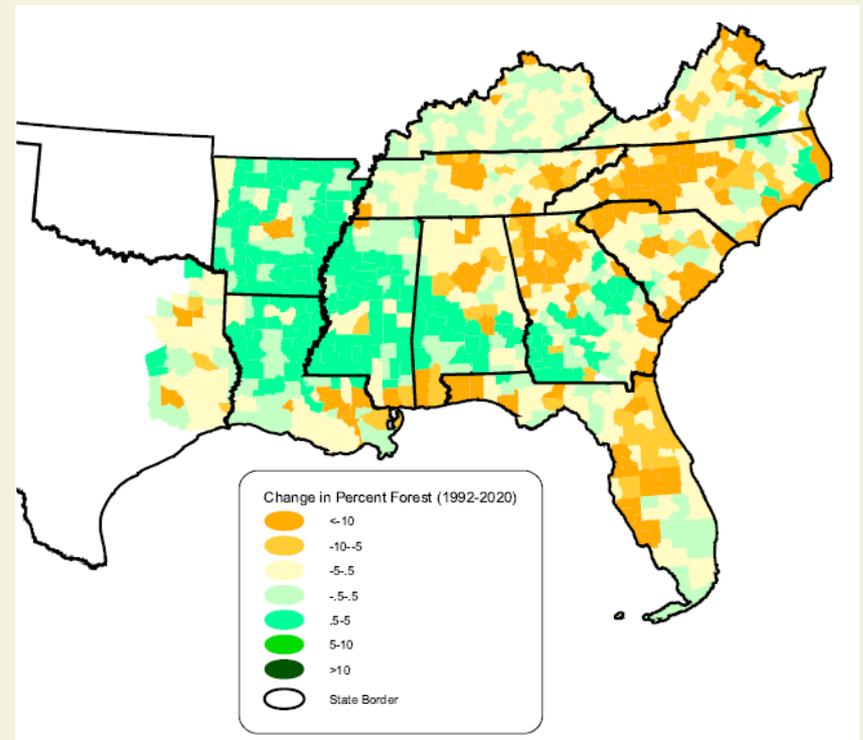
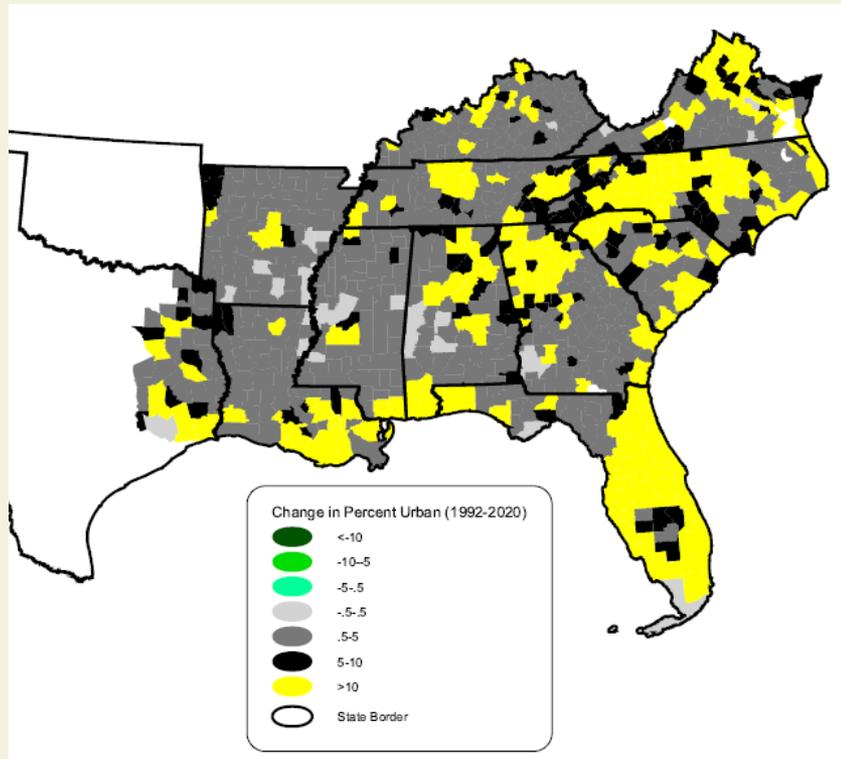


What about population growth?

- REITS sell high valued lands
- Impacts on managed forest lands / acreage?
- Impacts on logging businesses?
- Impacts on Jobs?



How might urbanization impact forest lands?



Green areas indicate potential growth areas for forest lands.



Source: USFS, Southern Forest Futures Project (2011)

Thank You

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