

# Forest Operations Research Unit

# Forest Utilization Research Unit

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STATE-LINE MEETING, LA-MS-AL  
BILOXI, MS 8/17 – 8/18/17



# Outline

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## Cooperatives

## Logging Business Health

## Business Decision

- Road Use / Routing
- Equipment Ownership
- Operational Efficiencies

## Trucking Insurance



# Cooperatives

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# Cooperatives

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Formal and informal to learn and work together (informal, non-profit)

More prevalent in European countries and Canada

Promote clear title to land and timber, management for specific objectives, and promote sustainability.

Educate, share information.

Landscape level planning; aggregate timber sales; more competitive contractor pricing (harvesting, seeding, etc..)

Reduces 'passive' management, especially for absentee landowners.



# Cooperatives

Many types of forest cooperatives exist across the US:

<http://www.partnersinforestry.com/>

<http://www.nnfp.org/CCFE/Docs/PDF/ForestLandownerCooperativesBlinnEtAl2007.pdf>

<http://www.familyforestfoundation.org/archives-2/forestry-cooperatives/>

<http://dnr.wi.gov/topic/ForestLandowners/woodlandOwnerOrgs.html>

[http://www.uwcc.wisc.edu/pdf/Bulletins/bulletin\\_07\\_02.pdf](http://www.uwcc.wisc.edu/pdf/Bulletins/bulletin_07_02.pdf)

<http://kickapoowoods.org/>

<http://stories.renewingthecountryside.org/2012/06/hiawatha-sustainable-woods-co-op/>

social sciences

## Forest Landowner Cooperatives in the United States: A Local Focus for Engaging Landowners

Charles R. Blinn, Pamela J. Jakes, and Misato Sakai

ABSTRACT

Family forest owners are showing an increasing interest in forest landowner cooperation for providing a variety of services related to sustainable forest management and processing. Because these cooperatives are locally owned, user-controlled, small-scale entities, they can more easily adapt to member needs than some other landowner assistance programs. Fifteen experts identified the benefits, strengths, weaknesses, opportunities, and threats of cooperatives. The results suggest ways in which cooperatives can enhance their effectiveness: opportunities, countering threats, and addressing weaknesses. Key issues related to cooperative effectiveness include (1) expanding membership to enhance leadership and assistance, (2) improving marketing efforts, and (3) developing better networks within community, with other forestry cooperatives, and with organizations that offer assistance to lives.

**Keywords:** forestry cooperatives, nonindustrial private forest landowners, family forest landowner assistance programs, Delphi method, SWOT analysis

Nonindustrial private (family) forests have long presented a challenge to service foresters trying to actively engage these landowners in forest management (National Research Council 1998). Approximately 10.3 million family forest owners control about 363 million acres of forestland in the United States (Butler and Lautherberry 2004, Smith et al. 2004). Collectively, these landowners are tremendously important to the condition of forested ecosystems and forest-dependent ecosystems (Larson 2004). They also are an important source of timber with United States accounting for nearly 20% of the world's timber production (Smith et al. 2004). Despite the high volume of timber harvested from family forests, management of these forests is not a primary objective for these landowners. Numerous studies

Received October 20, 2006; accepted June 20, 2006.

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### Balancing Ecology and Economics: A Start-up Guide for Forest Owner Cooperation

#### Introduction

The purpose of the second edition of this manual is to show how private landowners can work together to improve the ecological and economic value of their woodlands and, at the same time, benefit the communities in which their forestland is located.

#### Whom is the manual for?

Of the 10 million private, non-industrial woodland owners in the United States, 4.2 million hold title to 10 or more wooded acres. These forest owners with 10 or more wooded acres own over 360 million acres. They are the primary audience for this manual. The guide is also addressed to public and private forestry professionals, and cooperative and community development professionals who work with these forest owners.

Landowners with smaller parcels and a keen interest in the many forest benefits their woodlots offer will also find the manual useful. In addition, the guide should be helpful to managers of forests owned by counties and other local public entities, by managers of Native American forest

holdings, and by non-profit organizations that own forestland, including The Nature Conservancy, forestry foundations, and local land trusts.



#### Why a second edition of the manual?

The forest owner cooperation movement in the United States has grown steadily since the first edition of this manual was published in December 2000. Although the number of forest owner organizations is still relatively small (perhaps 25 in mid-2002), the collective experience of these groups has grown dramatically in that time. We have learned many new lessons about what works and what doesn't work in the formation and operation of these organizations. Since the first edition of the manual,



# Logging Business Health

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# Logging Business Health

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When older business owners retire, they aren't encouraging their children to work in logging.

Reduced workforce capacity.

As urban growth continues, how will logging businesses compete with service industries for workers?

Is education part of the answer?

Can new business practices help?



# Business Decision

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ROAD USE / ROUTING



# Road Use

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- 41.2 million tons harvested (2015)
- 25 tons/load
- 1.65 million loads



# Diesel Fuel Tax & Road Use

State	State Taxes (cents/gal)	Total State and Federal Excise Taxes (cents/gal)	Federal Excise Tax Burden of Total Tax (%)
Alabama	21.85	46.25	52.76
Arkansas	22.8	47.2	51.69
Florida	33.77	58.17	41.95
Georgia	34.66	59.06	41.31
Kentucky	23	47.4	51.48
Louisiana	20.01	44.41	54.94
Mississippi	18.4	42.8	57.01
North Carolina	35.25	59.65	40.91
Oklahoma	14	38.4	63.54
South Carolina	16.75	41.15	59.30
Tennessee	18.4	42.8	57.01
Texas	20	44.4	54.95
Virginia	26.03	50.43	48.38

Source: API, 2016



# Weight Limits Interstates & State Highways



# Weight Limits

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## By Road Type

- 80,000 lbs GVW Interstate
- Bridge formula
  - Axle weights & distance
- AL 10% tolerance
- 88,000 lbs GVW State/Local Roads



# Weight Limits

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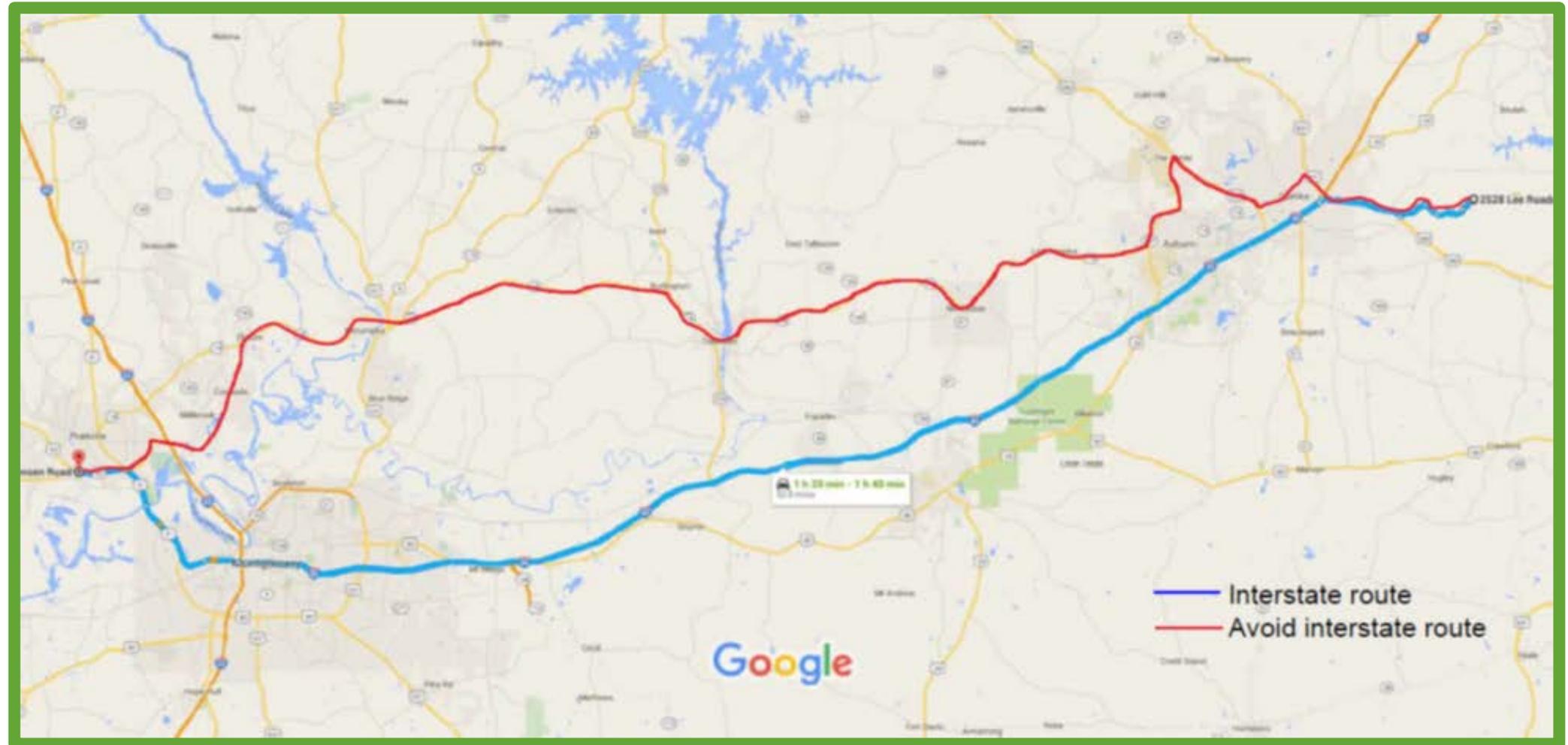


[www.Ruraltech.org](http://www.Ruraltech.org)

Professional organizations, like logger's associations, advocate increasing the GVW allowed on Interstates.



# Route Selection



# Road Conditions



# Road Conditions

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## LOW WEIGHT BRIDGES

8,650 County Bridges in AL

- 1,302 Structurally Deficient
- 1000 Functionally Obsolete (narrow)

Bridge Length

Routing

- Avoidance – increased travel distance
- No avoidance route

County Funding priorities



# Route Selection

## Impact of Weight Limits by Route Type

	Avoid Interstate Route	Interstate Route
<b>Gross vehicle weight (lbs.)</b>	88,000	80,000
<b>Payload (lbs.)</b>	50,000	42,000
<b>Loads/day</b>	2	3
<b>Wood delivered/truck/day (tons)</b>	50	63
<b>Loaded miles/day</b>	177	248
<b>Haul rate for one load (\$0.13/ton-mile)</b>	\$287	\$226



# Route Selection

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# Route Selection

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## ADVANTAGES OF INTERSTATE TRAVEL

### In-woods efficiencies:

- Reduce landing bottlenecks
- Reduce skidder delays
- Improve loader utilization
- Improve production from small landings

### Fuel Efficiencies

- Fewer stops
- Constant speeds

### Safety

- Reduces accident risk (avoids 4-way intersections)
- Avoids school zones, shopping areas, and other high traffic areas

Business Decision / Education



# What's Next for Road Use/Routing?

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## DECISION MODEL

- GVW (Payload)
- Distance
- Travel time
- Fuel efficiency



[www.Ruraltech.org](http://www.Ruraltech.org)

# Business Decision

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EQUIPMENT OWNERSHIP



# Equipment Ownership

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\$250,000 VS. \$750,000 +

Typical southern operation

- Feller-buncher
- Skidder
- Loader
- Trucks/Trailers

Alternative

- Feller-buncher

Business Decision / Education



# Business Decision

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OPERATIONAL EFFICIENCIES



# Results and Discussion

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## FELLING CYCLE ELEMENTS

- Move to first tree
- Cut
- Move between trees
- Reposition head
- Move to dump
- Dump
- **Delimb**
- Align butts
- Push trees
- Cut unmerchantable trees
- Cut dead trees
- **Trim stumps**



# Results and Discussion

## FELLING CYCLE ANALYSIS

No chainsaw operator

N = 82 cycles

Delimiting = 43% of total cycle time

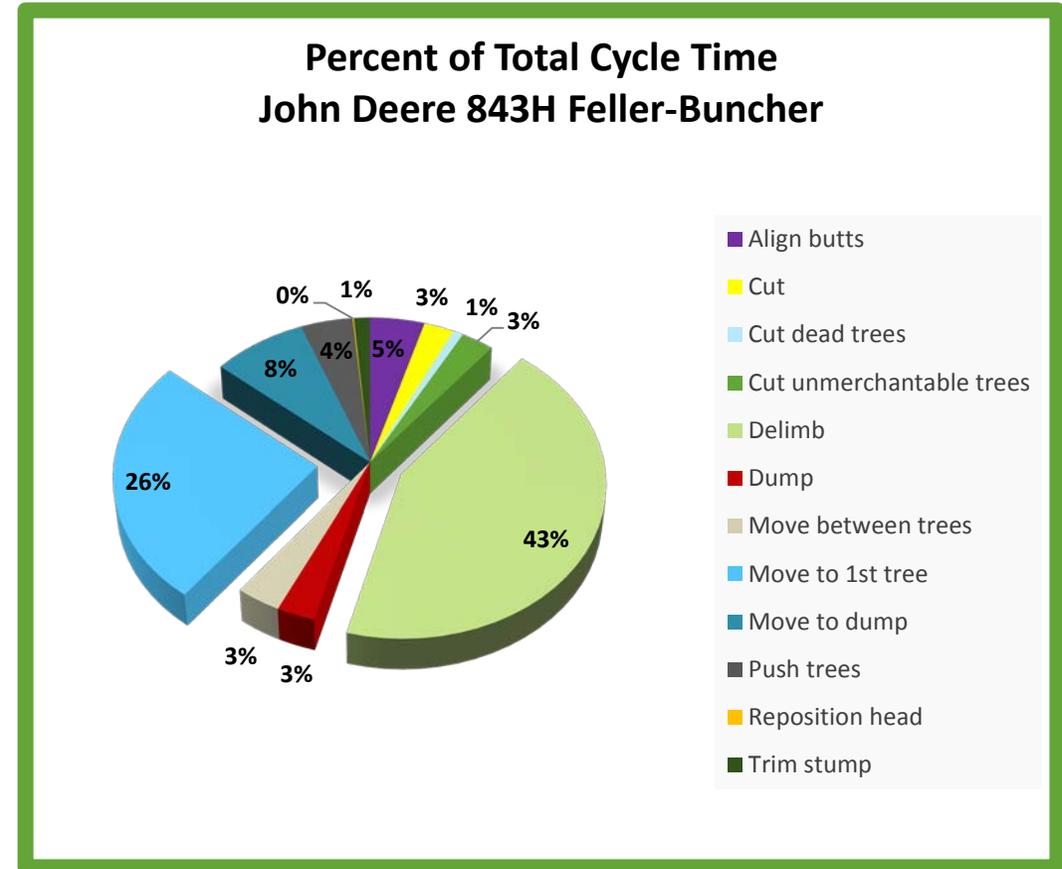
Move-to-first-tree = 26% of total cycle time

Avg. cycle time = 55 seconds

Range of cycle times = 10 - 173 seconds

Average production rate = 90gt/PMH

Range of production rates = 12 – 328 gt/PMH



# Results and Discussion

## FELLING

- Atypical operation



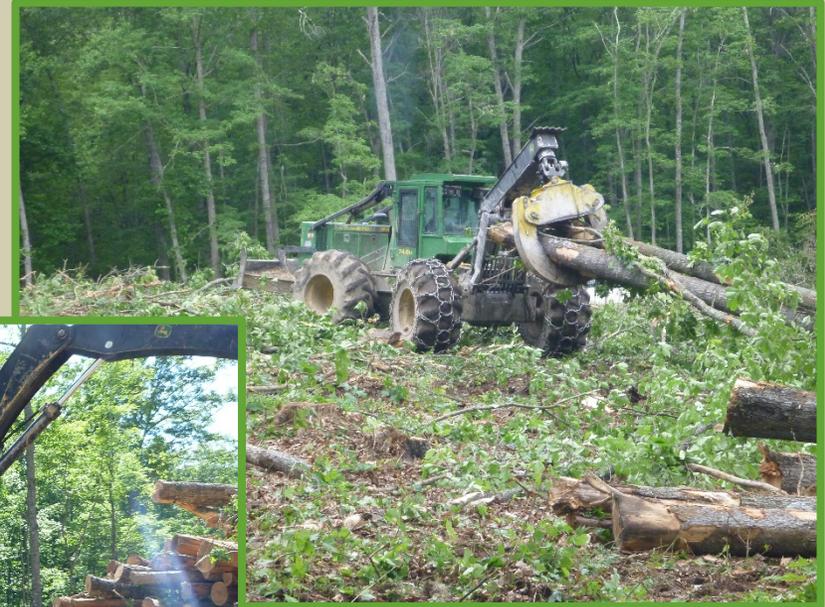
# Trucking Insurance

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# Trucking Insurance Accident Litigation

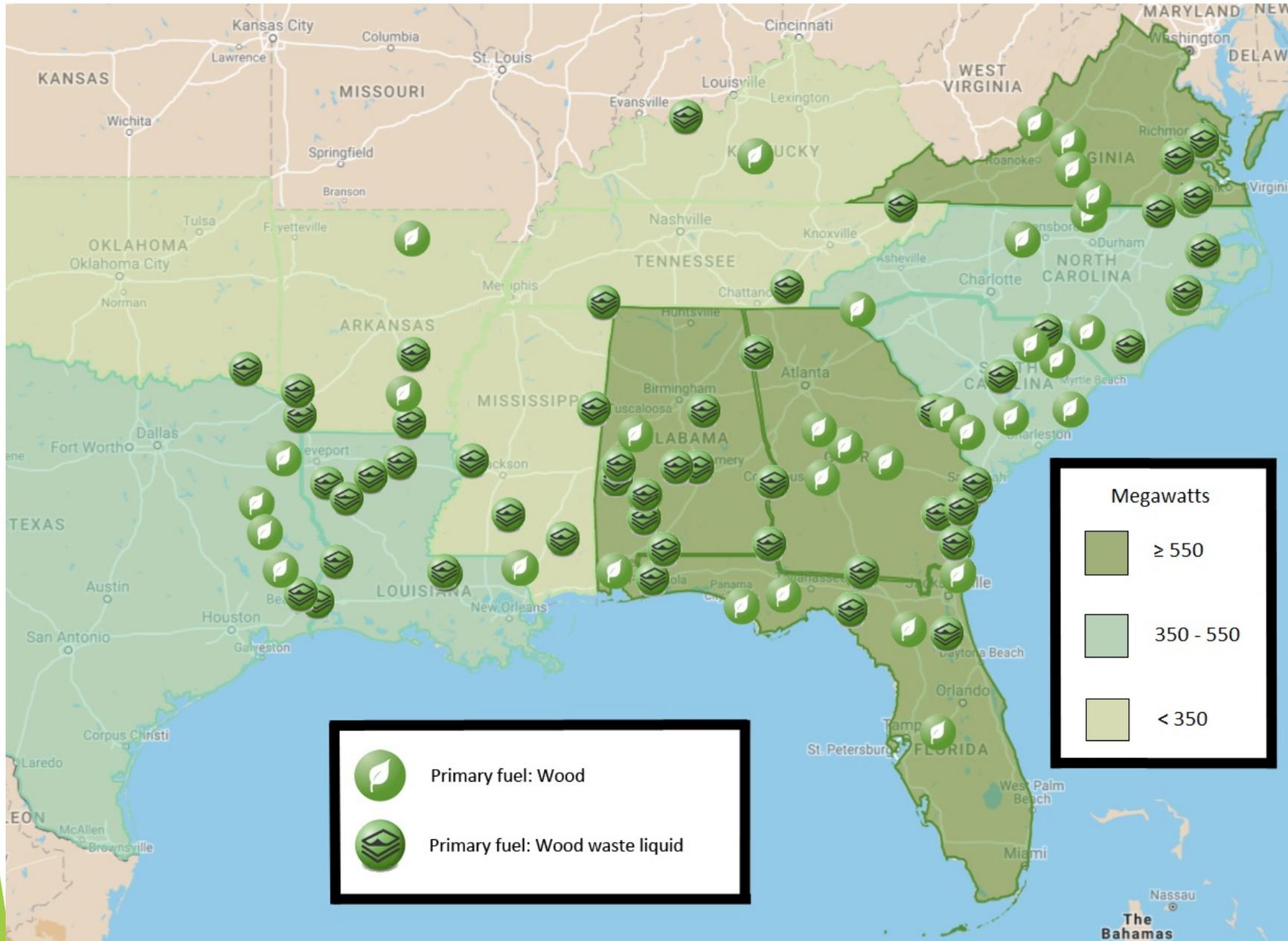




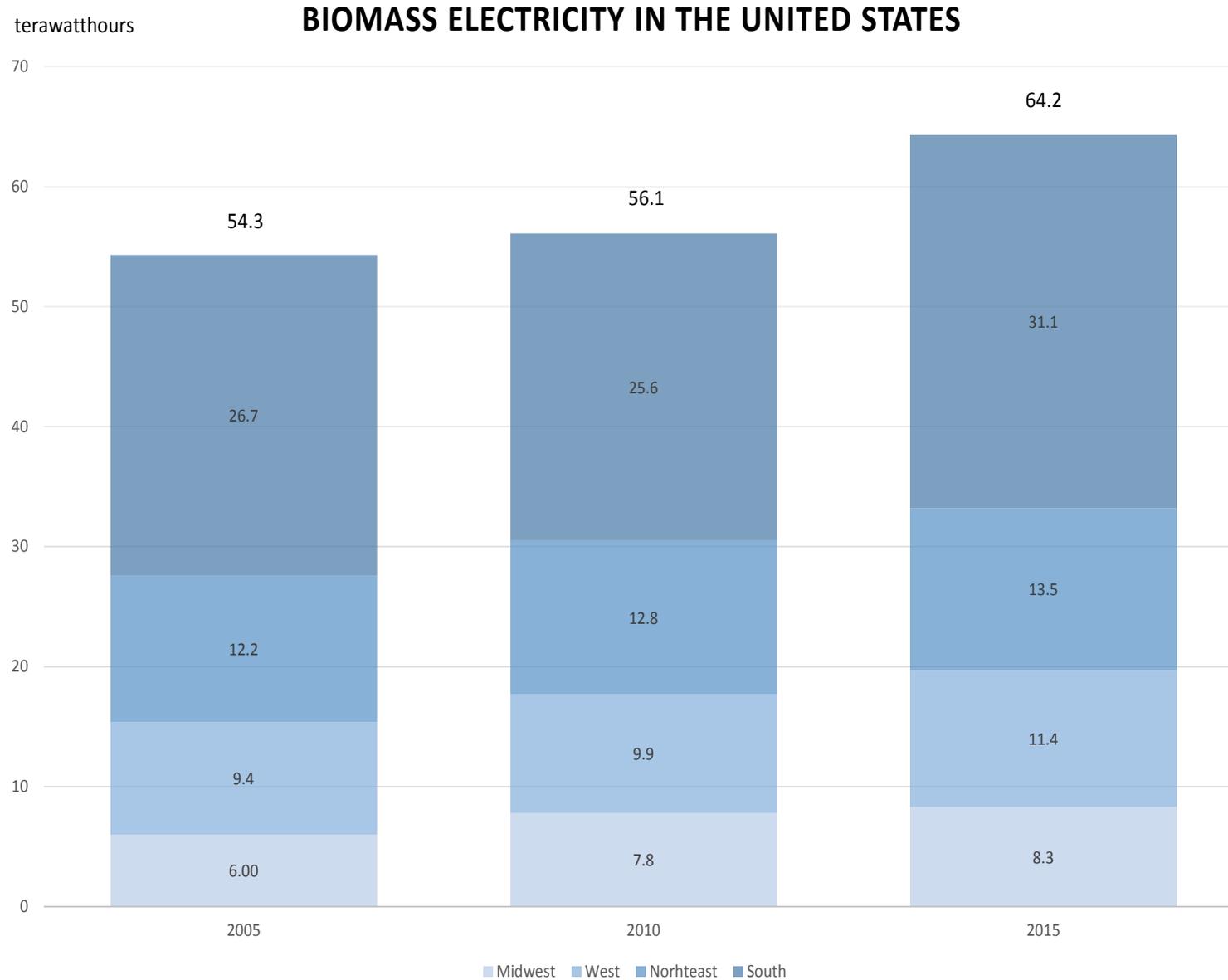
# Discussion



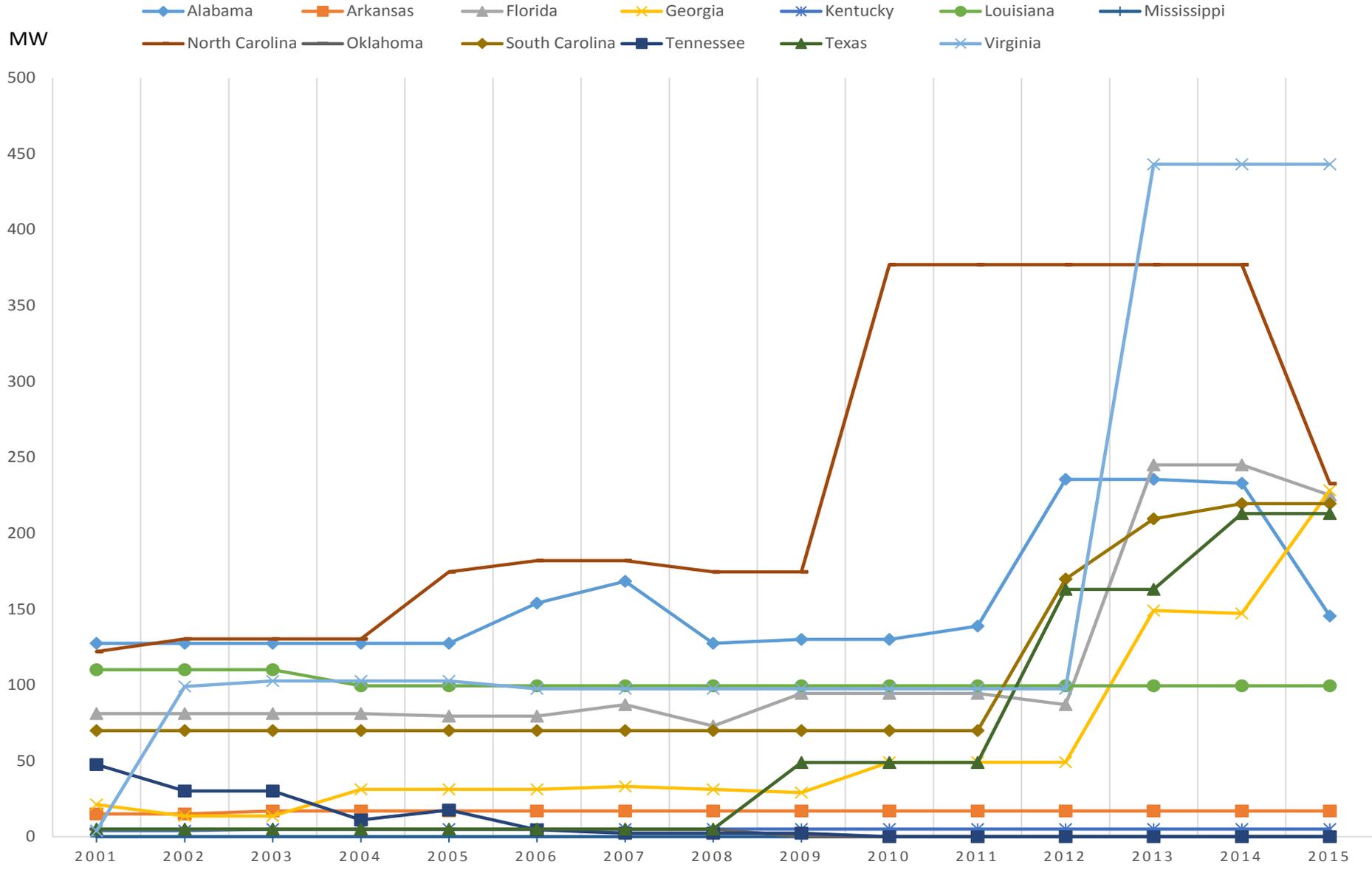
# Biomass Power Plants in the South



# The South Leads in Biomass Electricity (Pellets not included in this)



# POWER FROM BIOMASS PLANTS USING WOOD AS PRIMARY FUEL IN SOUTHERN STATES



# Truck load of chips and the Virginia Pittsylvania Power Station (Dominion Power)



Wood Products



We have papers coming out on this work --  
Wood for energy in the South is big and  
growing

