# Woodland Stewards Webinar Series

## Session 1: Getting to Know Your Woodlands

Audio starts at 7PM Eastern (6PM Central)

(Please go to Tools>Audio>Audio Setup Wizard to ensure audio is correctly set)

WOODLAND STEWARDS
A Regional Extension Program for Landowners

*The Woodland Stewards Webinar Series was created by a team of Extension professionals from the following programs:*

NC STATE EXTENSION
UTEXTENSION INSTITUTE OF AGRICULTURE THE UNIVERSITY OF TENNESSEE
UK UNIVERSITY OF KENTUCKY College of Agriculture Forestry Extension
Extension University of Missouri
U of A DIVISION OF AGRICULTURE RESEARCH & EXTENSION University of Arkansas System
CLEMSON COOPERATIVE EXTENSION
UNIVERSITY OF GEORGIA EXTENSION
MISSISSIPPI STATE UNIVERSITY EXTENSION
UNIVERSITY OF MARYLAND EXTENSION Solutions in your community
Virginia Cooperative Extension Virginia Tech • Virginia State University
Southern Regional Extension Forestry

# Getting to Know Your Woodlands

Dr. Don C. Bragg

USDA

Dr. Bill Hubbard

UNIVERSITY OF MARYLAND EXTENSION Solutions in your community

Mr. Derrick Phinney

CLEMSON COOPERATIVE EXTENSION

Dr. Walt McPhail

South Carolina Landowner and Tree Farmer

WOODLAND STEWARDS
A Regional Extension Program for Landowners

Session 1
Dr. Robert Bardon
Moderator
NC STATE EXTENSION

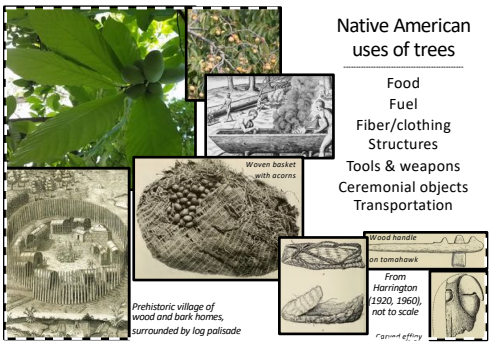
# A Brief History of Southern Forests and Why Your Woodlands Are Important TODAY

Don C. Bragg, Ph.D.
Project Leader and Research Forester
USDA Forest Service
Southern Research Station
Monticello, Arkansas

WOODLAND STEWARDS
A Regional Extension Program for Landowners

## South is blessed with 245 million acres of forest

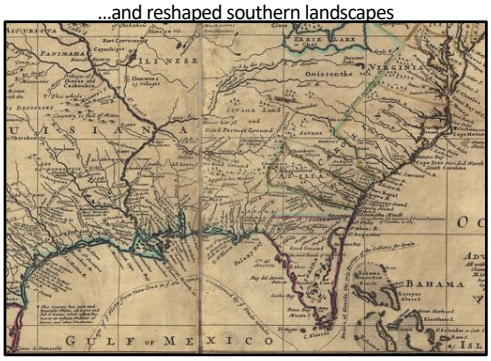
## Native American uses of trees



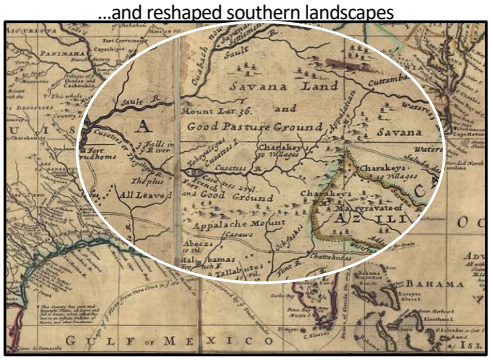

- Food
- Fuel
- Fiber/clothing
- Structures
- Tools & weapons
- Ceremonial objects
- Transportation

Native Americans used fire as a tool…

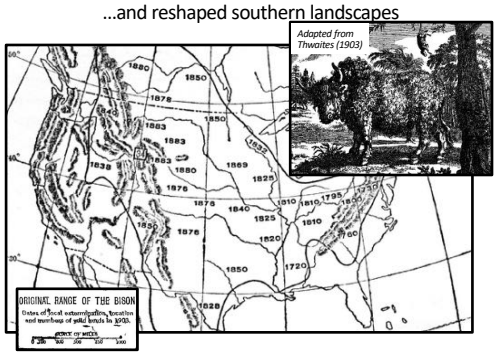

…and reshaped southern landscapes




…and reshaped southern landscapes



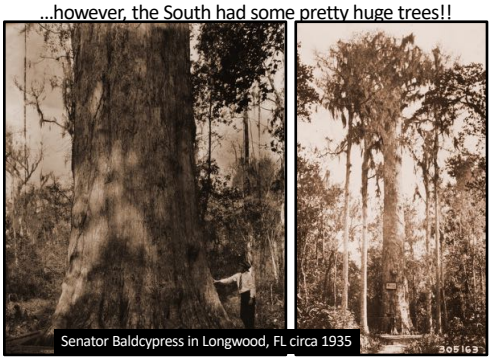
…and reshaped southern landscapes




Romantic visions of the past not always accurate…

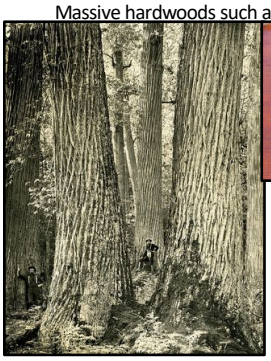
*The Mountain Ford*, 1846 painting by Thomas Cole

…however, the South had some pretty huge trees!!



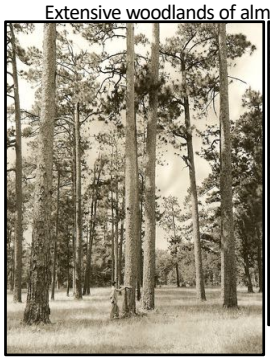
Senator Baldcypress in Longwood, FL circa 2009

Massive hardwoods such as American chestnut



*Chestnutting* by Winslow Homer (1870)

Extensive woodlands of almost pure longleaf pine…



Note the open, grassy understory

…supported high biodiversity in understory

Shortleaf and loblolly pine forests

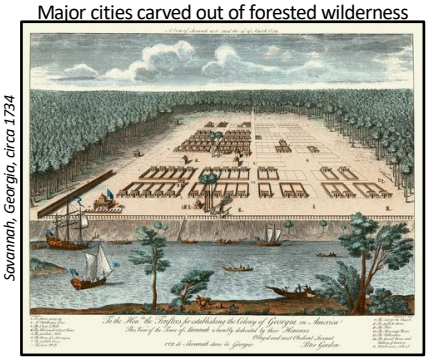
Massive bottomland hardwoods…

…that had to tolerate frequent flooding

Overflow mark
(high water)

Many virgin forests dominated by scrubby trees

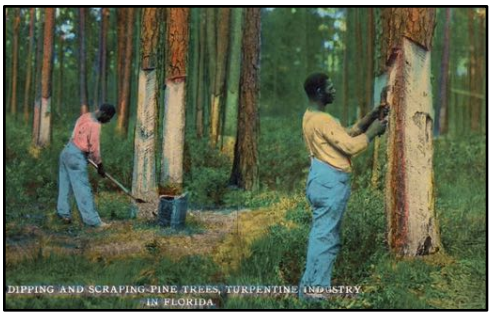
Major cities carved out of forested wilderness



*Savannah, Georgia, circa 1734*

Drawing of the New Ebenezer settlement (Georgia)
by Philipp Georg Friedrich von Reck circa 1733

Earliest timber industry was often not lumber




Live oak for shipbuilding
(dense, strong, curved wood)

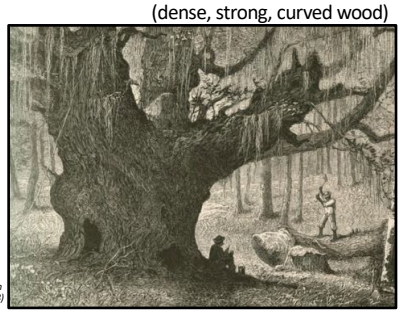
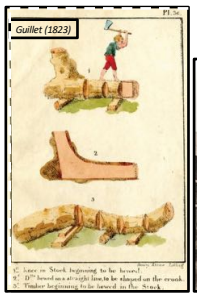
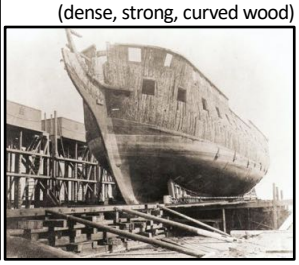
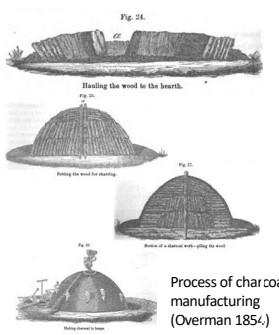


*Image from Norton (2013)*




Live oak for shipbuilding
(dense, strong, curved wood)

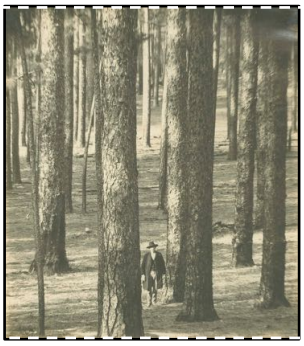



Process of charcoal manufacturing (Overman 1854)

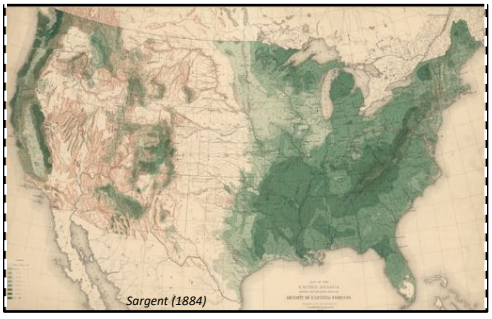
White oaks for tight cooperage

Most southern forests hardly touched prior to 1860



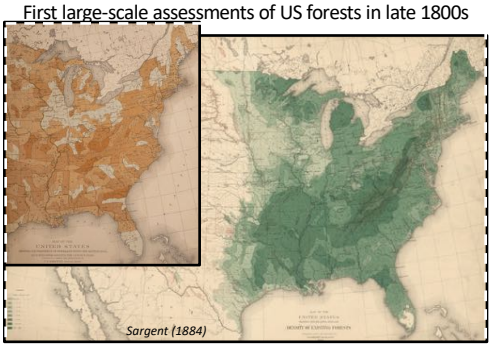
*Guerilla Warfare, Civil War* 1862 painting by Albert Bierstadt

First large-scale assessments of US forests in late 1800s



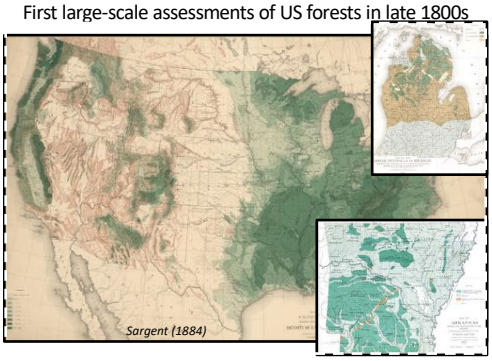
*Sargent (1884)*

First large-scale assessments of US forests in late 1800s



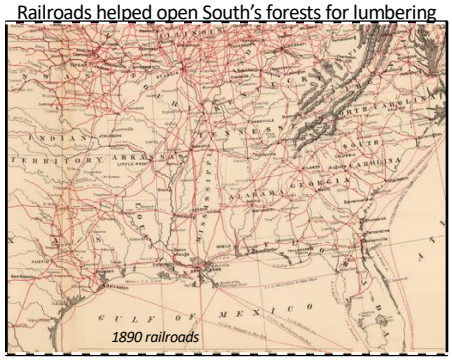
*Sargent (1884)*

First large-scale assessments of US forests in late 1800s



*Sargent (1884)*

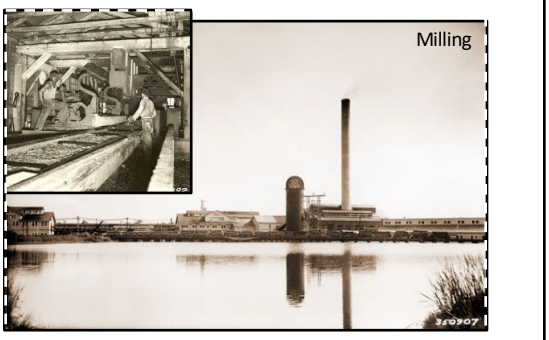
Railroads helped open South's forests for lumbering




*1890 railroads*

New England and Lake States cut out

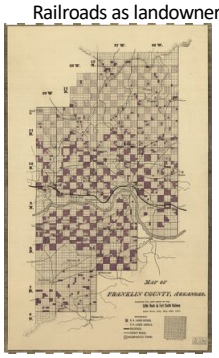
Large workforce looking for opportunities

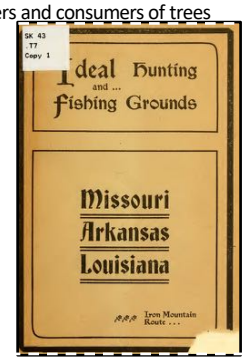

Milling


Milling


Shipping

Railroads as landowners and consumers of trees






Frank H. Goodyear

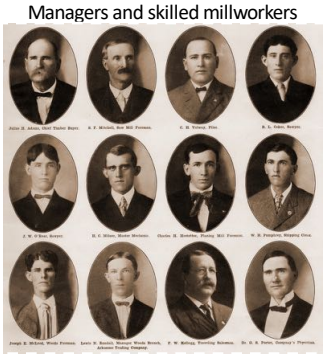
Charles W. Goodyear

Lumbermen AND railroad barons…

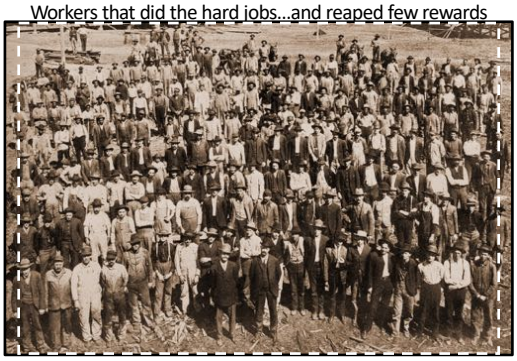
Lumbermen AND railroad barons…

Home of T.L.L. Temple

Managers and skilled millworkers



Workers that did the hard jobs…and reaped few rewards

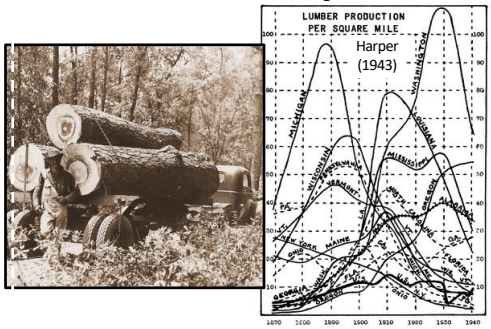


Lumber mills as communities…and overlords


Many company owned towns

Community

1900-1930 southern lumbering dominance



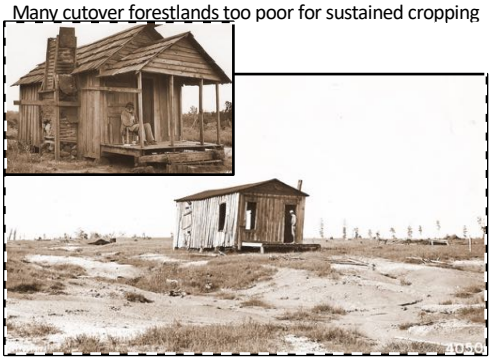
What a resource!

What a resource!


Resulting "stumpscapes"

Some—but not all—cutover became cropland

Many cutover forestlands too poor for sustained cropping



Many cutover forests lacked a seed source…

…or were repeatedly burned into oblivion

Fire as a timberman's scourge…

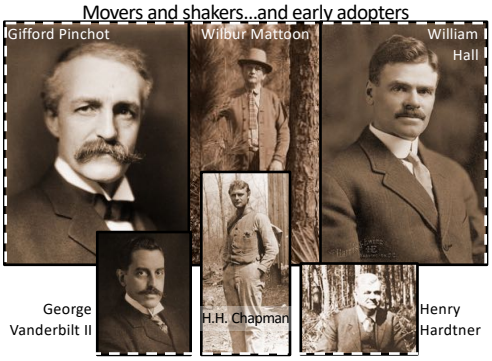
Could forestry prove a solution?

President Teddy Roosevelt (left) and Gifford Pinchot (right)

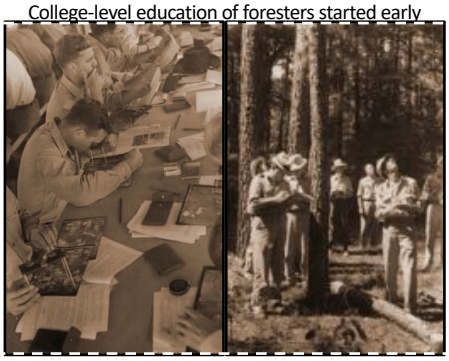
*When the Gay Nineties began, the common word for our forests was "inexhaustible." To waste timber was a virtue and not a crime. There would always be plenty of timber....The lumbermen...regarded forest devastation as normal and second growth as a delusion of fools....And as for sustained yield, no such idea had ever entered their heads. The few friends the forest had were spoken of, when they were spoken of at all, as impractical theorists, fanatics, or "denudatics," more or less touched in the head. What talk there was about forest protection was no more to the average American that the buzzing of a mosquito, and just about as irritating.*

Gifford Pinchot (1947)
*Breaking New Ground*

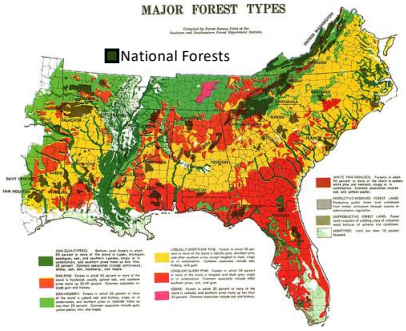
Movers and shakers...and early adopters




College-level education of foresters started early



Legislation allowed for creation of more national forests




CCC and other government work programs

Fire fighting became a priority

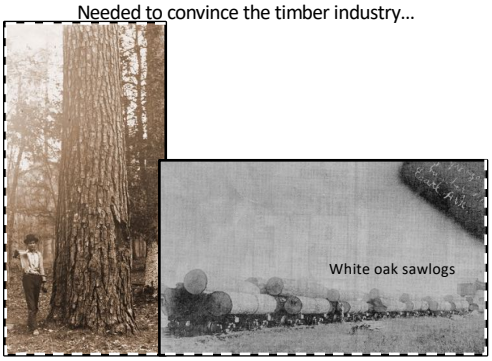
Fire fighting became a priority

Public relations to fight fires

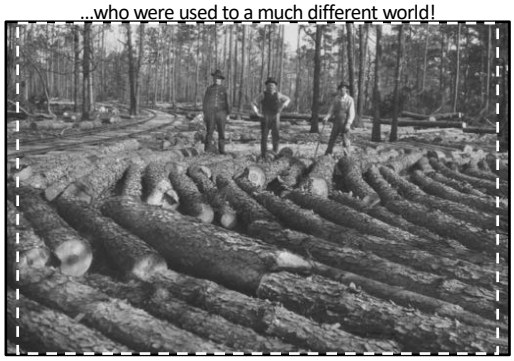

1920s Forest Service glass slide

Public relations to fight fires

Needed to convince the timber industry…




…who were used to a much different world!

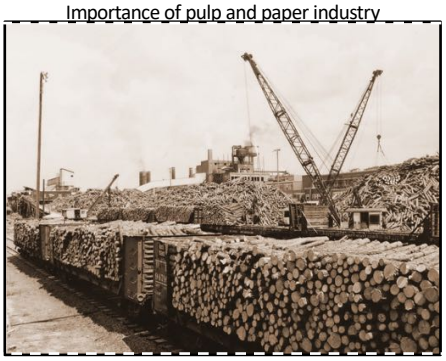


Second-growth timber inherently deficient?

Not if properly grown and tended!

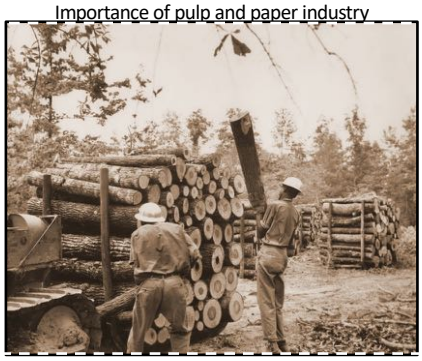
Field research at experimental forests

Importance of pulp and paper industry



Importance of pulp and paper industry

Importance of pulp and paper industry



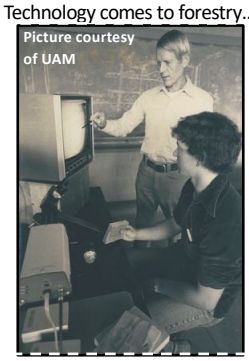
Needed to learn how to artificially regenerate forests

Forest genetics and tree improvement programs

Forest genetics and tree improvement programs

Heady days for southern forestry

Technology comes to forestry…




…and trees go to space!

…and trees go to space!

Moon tree and plaque picture by Jesse Berry


For most of 20th Century, southern forestry grew…

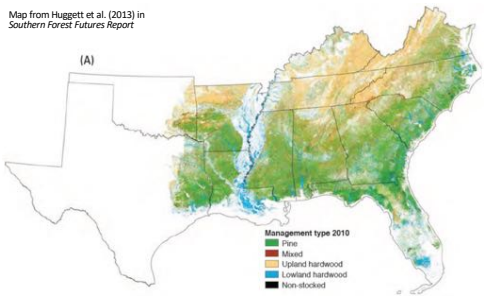
…a few large areas of bottomland forest clear for crops…

…and this brings us to today!

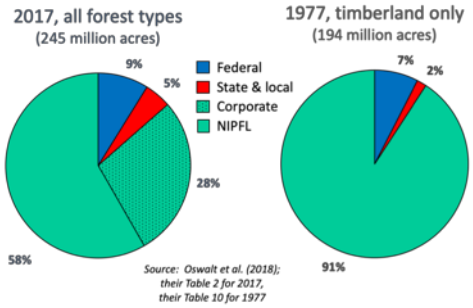
Today, most timberland loss is to urbanization

But the South has seen a net gain in forest cover!

Map from Huggett et al. (2013) in *Southern Forest Futures Report*




Southern forest ownership, 1977 versus 2017




*Source: Oswalt et al. (2018); their Table 2 for 2017, their Table 10 for 1977*

Forestry practices continue to intensify…

Forestry practices continue to intensify…

13-year-old test plantation in SC

…upland hardwood area largely stable…

…mixed outcomes in bottomland forests…

…longleaf area increased, in part due to more planting…

…shortleaf pine experiencing major decline…

…fewer large sawlogs being produced from natural stands…

…much higher % of pine from planted stands…

…more consistent if lower grade product…

…hardwood markets still pretty strong…

…pulp & paper industry declining, partially replaced by pellets…

…while timber is the most obvious "ecosystem good" that makes your forests valuable, it is not the only good or service they provide!

Ecosystem goods and services…water

USDA

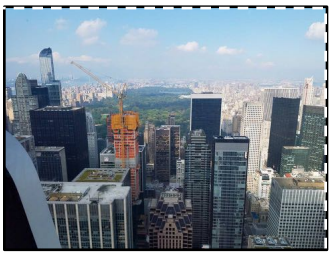
US South population in 1950: 41,751,000
US South population in 2018: 115,236,000

**Nearly tripled!**

Ecosystem goods and services…huntable wildlife

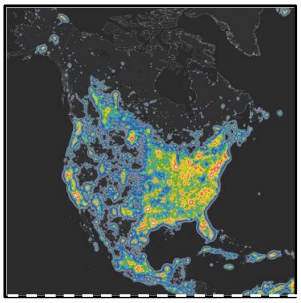
Other forest goods and services

An urban future…



…a rural past(?)

An urban future…



…a rural past(?)


dbragg@fs.fed.us

## Time to take a break!

WOODLAND STEWARDS
A Regional Extension Program for Landowners

## A Landowner's Perspective

Walter McPhail – Mauldin, South Carolina

WOODLAND STEWARDS
A Regional Extension Program for Landowners


## Generation to Generation

**Estate Planning**

- What is going to happen to your land when you pass on?
- Do you have a will?
- Grand daddy who passed away during the Flu epidemic did not have a will. (In 1918) leaving his wife and five children.
- The estate was settled by Walter in 1994.

## Planted 1994
## Growth 1940

## Volunteer

## Loblolly Pines

- 30-35 year rotation
- 3 Thinnings
- Genetically Improved Pine
- 500 trees per acre 9' x10'
- Herbaceous Weed Control
- Hardwood Release
- Fertilization

## We grow trees to make money. We make money selling trees.

**Enjoyment, 401K, Retirement**

- 1984 - Purchased Land: $400 per acre ($200 for land and $200 for trees)
- 3 Thinnings – Total: $1,800 per acre
- 2019 - Present value: $4,400 per acre ($2,500 per acre for land and $1,900 for trees)
- Trees produced $3,700 per acre or $106 per acre per year
- Hunting lease $15 per acre

## County Forestry Association

## Field Tour

## FOREST MANAGEMENT PLAN

**Due West Tree Farm - American Tree Farm # SC-3653.2**

| | |
|---|---|
| Owner: | McPhail Tree Farms, LLC.<br>2 Jenkins Court<br>Mauldin, South Carolina 29662 |
| Total Area: | 106.86 acres |
| Location: | 34.314 / -82.367 decimal degrees<br>1.7 miles south of Due West, SC via Hwy 20 / 185 |
| Plan Standards: | This plan is written to comply with standards of the American Tree Farm Program, as well as the National and South Carolina standards for Forest Stewardship Plan development. The landowner can utilize this plan to assist in qualifications for **cost share programs** that may be available. |
| Plan Author: | Nathan McClure<br>SC Reg. Forester #1839, SAF Cert. Forester #1812<br>F&W Forestry Services, Inc.<br>210 South Main Street<br>Fountain Inn, SC 29644<br>Phone: 864-230-1664 |

# GENERAL PROPERTY DESCRIPTION

The Due West Tree Farm includes two parcels that are "almost" adjacent and total 106.86 acres. The two adjacent parcel s are Parcel # 043-00-00-101 at 69.43 acres and Parcel # 043-00-00-114 at 37.43 acres

**Topography**

This predominantly forested Tree Farm is located on lands that are level to gently rolling. There are two small perennial streams within the southern and western sections of the tract. There is a topographic map of the property in Appendix A.

**Access and Security**

Access to the property is good with a well-developed internal road system. Two access roads lead from highway 185 into the tract and one forest road leads from Harkness Lane. Cable gates have been installed on these roads. See the maps in Appendix A for the road locations.

The property boundaries are marked in white spray paint on trees in some locations. Records indicate that a boundary survey was completed in 2006 followed by boundary painting in various locations in 2006, 2009 and 2010.

**Land History**

Much of the tract has an agricultural land use history, including row crop production. Specifics of past use can be found in the individual stand descriptions found in this Plan.

# LANDOWNER'S MANAGEMENT OBJECTIVES

**Primary objective:** Wood production

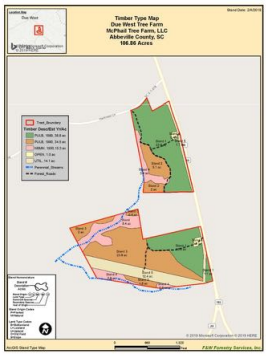
**Secondary objective:** Wildlife management for game and non-game species: diverse habitat and species

The landowner has also expressed a desire for the property to be a **revenue producing asset**, but he is also interested in using management practices that minimize impact on soil and water resources.

The landowner has indicated a preference for pine timber rotations that include three selection harvests followed by a final harvest over a 35 year rotation. He also recognizes the value of managing for higher value products, such as utility poles.

Timber should be managed in a way that maximizes revenue based on timber growth and product value.

**Maps**




## STAND 1 – 38.8 acres

- This stand is composed of planted Loblolly pine that was established in 1989 on old row crop areas. Cecil sandy loam soil.
- The stand is well stocked with approximately 110 square feet of basal area per acre. The timber includes a blend of pine CNS (27 tons/ac) and pine sawtimber (62 tons/ac). Timber meeting the utility pole standard is estimated at 25-30%.
- The heights of the dominant trees in this stand are approximately 80' resulting in an exhibited site index of 73 (base age 25).
- Stand growth rate is 4.5 – 5% per year.
- The understory includes very little vegetation.

## Silvicultural Practices

**Past Silvicultural Activity:**
Commercial thinning of pines occurred in 2007 and 2015; A woody release by skidder application of herbicide in
2011; additional larger hardwood control by hack and squirt applied herbicide in 2014.

**Future Harvests:**
A third selection thinning of the pine plantation is recommended for 2021. The residual stocking should be 65-75 sf/ac of basal area with approximately 70-80 trees per acre. A final harvest of the stand should be conducted in 2026.

**Threatened & Endangered Species**

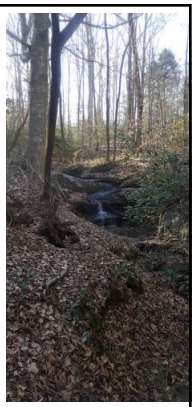
- Description and recommended practices to meet manage without negative impact of any known rare species
- Statement that rare species are not known to exist and what resources have been searched

**Special Sites**

- Description of sites of historical, archeological, or environmental significance (cemeteries, native American sites, etc.) These are especially important when heritage is a desired objective

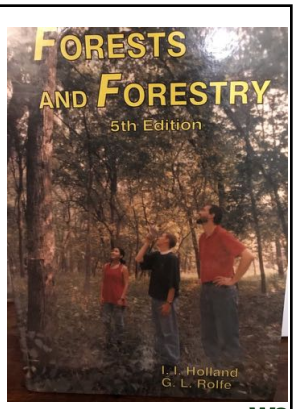
**Forest Health and Invasive Species**

- Description of potential problems with insects and disease affecting forest health. Recommendation on practices to reduce risk from these pests
- Identification of specific invasive species that exist on the property and a general recommendation on how and when to control them.



## Resources

- Extension Service
- County Forestry Associations
- Forestry Commission
- American Tree Farm System
- Forest Land Owners Association
- National Woodland Owners




**I challenge you to be more involved in your forest and wildlife management.**

Get a management plan.

Be active in your county and state forestry associations.

Help select programs and become an officer.

If there is no local forestry association, START ONE.

**Be involved.**

**Walter McPhail, 2 Jenkins Ct. Mauldin SC 29662**
**864-288-7618** TreeVetSC@aol.com

# Management Plans: The Why and How

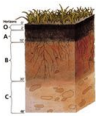
Bill Hubbard: University of Maryland Extension
Derrick Phinney: Clemson University Extension

WOODLAND STEWARDS
A Regional Extension Program for Landowners

## Why is a Management Plan Important?

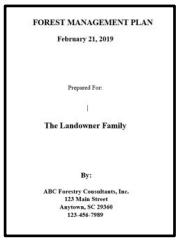
- 766 Million Acres of Forest Land in the US
- 81% is held in private ownership in the Eastern US
- 340 Million Acres in the Eastern US
- Management plan is a landowners "How to Manual"



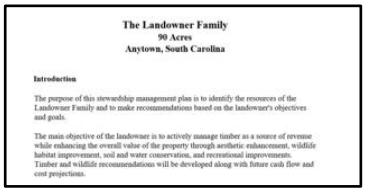

## Parts of a Management Plan

- Your Objectives
- Property Location and History
- Maps
- Stand Description and Recommendations
- Activity schedule
- Supplemental information


FOREST MANAGEMENT PLAN
February 21, 2019
Prepared For:
The Landowner Family
By:
ABC Forestry Consultants, Inc.
123 Main Street
Anytown, SC 29360
123-456-7989

## Your Objectives

- Defining Objectives is Important
- Desired Outcomes for Your Property
- Involve Family Members
- What are your Management Constraints?



**The Landowner Family**
**90 Acres**
**Anytown, South Carolina**

**Introduction**

The purpose of this stewardship management plan is to identify the resources of the Landowner Family and to make recommendations based on the landowner's objectives and goals.

The main objective of the landowner is to actively manage timber as a source of revenue while enhancing the overall value of the property through aesthetic enhancement, wildlife habitat improvement, soil and water conservation, and recreational improvements. Timber and wildlife recommendations will be developed along with future cash flow and cost projections.

## What are your interest?








## Property Location and History

- Describe the Property
- Reference the Deed/Plat
- Location Map
- Surveys
- Soil Maps
- Stand Maps
- Aerial

**Location**

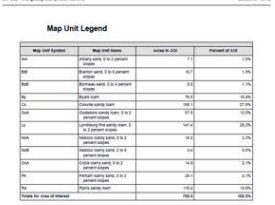
The Landowner Family's property is located approximately X miles north of the Town of Reevesville, SC off of Hwy 78. The GPS coordinates of the property are xxx degrees Latitude and xxxx degrees Longitude. See attached maps for additional information.

**History**

The tract contains a mix of agriculture fields and forest land. The agriculture fields have a history of crop rotation and are currently being farmed. The forest land contains upland areas mostly dominated by pine plantation and wetlands mainly in bottomland hardwood species. Harvesting has been conducted in the late 1980's and replanted in loblolly pines, but no active management has been conducted since.

## Plat and Stand Map


## Soils Map



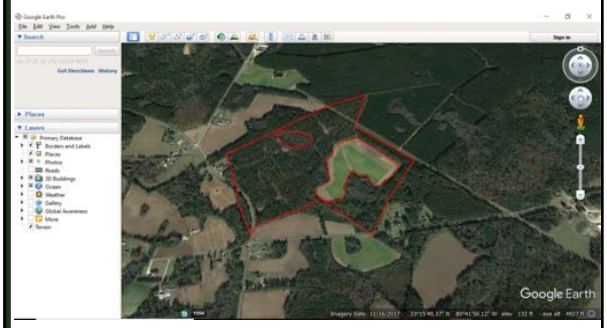

## Online Tools


https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

## Online Tools


https://mylandplan.org/signup

## Online Tools




## Resource Assessment

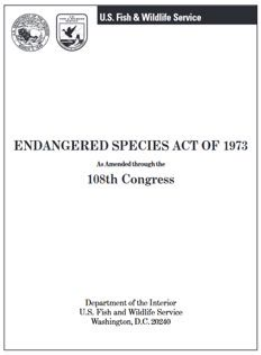
- Descriptive information about natural resources on your property
- Stand types
- Soils
- Threatened and Endangered Species
- Historical features
- Wildlife Use
- Helps determine capability of meeting objectives

## Stand Types

## Stand Types

## Soil Profile

## Endangered Species


U.S. Fish & Wildlife Service

ENDANGERED SPECIES ACT OF 1973

As Amended through the

108th Congress

Department of the Interior
U.S. Fish and Wildlife Service
Washington, D.C. 20240


U.S. Fish & Wildlife Service

ESA Basics

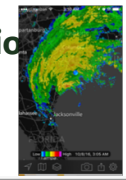
*40 Years of Conserving Endangered Species*

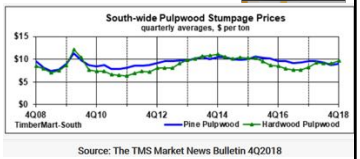
http://www.fws.gov/endangered/

## Historical and Cultural Resources

## Management Recommendatio

- Should outline a general set of treatments or operations
- Cover a 10 year block of time
- Fluid Plan and can be revised
  - Change in objectives
  - Change in markets
  - Change in weather






Source: The TMS Market News Bulletin 4Q2018

**TIMBER STANDS**

**STAND 1 - LOBLOLLY PINE (52 ACRES)**

**Description**

This stand of loblolly was bedded and then planted during the 1994-95 planting season. This stand is approximately 24 years old and contains about 550 trees per acre with an average diameter of 8 inches and an average merchantable height of 38 feet.

**Recommendations**

Stand 1 should be fifth-row thinned in 2019 to remove the diseased and suppressed trees in order to give room for the more vigorous trees to accelerate in growth. Leaving approximately 200-250 trees per acre. A prescribed burning schedule should begin the year following the thinning operation and continue at two-year to three-year intervals.

The thinning will benefit quail, deer, and turkey by opening up the stand. The sunlight will be able to penetrate the forest floor allowing herbaceous plants and small shrubs to grow in the understory, therefore increasing the forage productivity of the stand. Prescribed burning will control the understory and also create new vegetation.


**STAND 2 – MIXED HARDWOOD/PINE (14 ACRES)**

**Description**

This is a mixed aged hardwood/pine stand. Based on historical photos back to 1994, it appears this stand had some harvesting conducted prior to this date. Currently the stand in made up of low quality gums, maples, oaks and a few loblolly and pond pine. Average diameter is 9 inches. Very low volume is present, and soils are classified as Rains Loamy Sandy. This area is wet most of the year.

**Recommendations**

This area is best suited to manage for aesthesis and wildlife. Retain this area in its current condition. Several wildlife openings can be created along the edge of this stand and the agriculture field. Monitor for overall forest heath.




## Activity Schedule

- List when activities will take place
- Can include projected costs and re
- Records of the activities should be
  - Dates, Times, Expenses, Incomes
  - Types of seedlings
  - Herbicides
  - Weather
  - Contractors

These records will be helpful in the future as you evaluate your successes, plan additional activates and update the management plan.

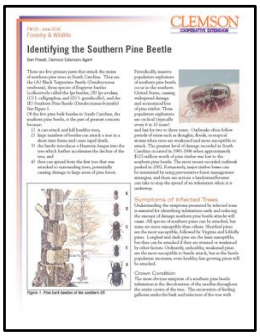
Schedule of Activities and Recommendations

| Stand # | Description | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Planted Loblolly Pine | Conduct 5th row thinning | Establish fire breaks | Prescribe burn | Maintain fire breaks | Maintain fire breaks | Prescribe burn | Maintain fire breaks | Evaluate for possible harvest | Conduct harvest | Reevaluate |
| 2 | Hardwood/ Pine | Retain | Monitor for overall forest health | Evaluate for wildlife food plots | Establish food plots | Maintain food plots | Maintain food plots | Maintain food plots | Evaluate based on objectives | Retain | Retain |
| 3 | Bay/Pond | Retain this area for overall diversity | Retain this area for overall diversity | Retain this area for overall diversity | Retain this area for overall diversity | Retain this area for overall diversity | Retain this area for overall diversity | Retain this area for overall diversity | Retain this area for overall diversity | Retain this area for overall diversity | Retain this area for overall diversity |
| 4 | Non-timber / Ag Field | Maintain ag lease | Add wildlife buffers to field edges | Maintain buffers and ag lease | Maintain buffers and ag lease | Maintain buffers and ag lease | Maintain buffers and ag lease | Maintain buffers and ag lease | Maintain buffers and ag lease | Maintain buffers and ag lease | Maintain buffers and ag lease |



## Supplemental Information

- Fact sheet and publications
- List of foresters, wildlife biologist, county extension agents, USDA, financial advisors, and anyone else that might be of assistance
- Supplemental and alternative sources of income
- Cost Share – Federal and State
- Glossary of Terms
- Expenses
- Liability



CLEMSON COOPERATIVE EXTENSION

Identifying the Southern Pine Beetle

## Supplemental Information

**Extension Services:**

Arkansas: https://www.uaex.edu/environment-nature/forestry/

Georgia: http://extension.uga.edu/topic-areas/environment-natural-resources/forestry.html

Kentucky: http://forestry.ca.uky.edu/extension-home

Maryland: https://extension.umd.edu/wye/ume-extension/forestry

Mississippi: http://www.cfr.msstate.edu/extension.asp

Missouri: https://extension2.missouri.edu/find-your-interest/agriculture-and-environment/agricultural-systems-and-natural-resources/forestry

North Carolina: https://forestry.ces.ncsu.edu/

South Carolina: https://www.clemson.edu/extension/forestry/

Tennessee: https://ag.tennessee.edu/fwf/Pages/UT-Extension---Forestry.aspx

Virginia: https://www.ext.vsu.edu/forestry/

## Supplemental Information

My Land Plan - https://mylandplan.org/

Soil Web - https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

SREF - https://sref.info/

Cost Share Programs - http://www.southernforests.org/rural/cost-share-programs

Google Earth - https://www.google.com/earth/versions/

## Managed and Unmanaged Forest

## Why Do We Need to Manage Our Land?

- Our responsibility to be good stewards of the land
- Private landowners are critical to forestry
- Environmental and economic benefits
- Forestry is an investment
- Your land should be an asset and not a liability
- Leave it better than you found it

**Make sure your woodlands are providing the benefits and results you want.**

## The Landowner Is the Key to Success

- Must work together
- Most rewarding benefits
  - Productive and Healthy Forest
  - Create Present and Future Value
  - Positive Economic Impact
  - Pride In Your Work and Efforts
  - Share with Family and Future Generations

- **You Hold the Seed to Growing Our Forest, Its Success Depends On You**!

# Questions?


NC STATE EXTENSION
Extension
University of Missouri
DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System
UK
UNIVERSITY OF
KENTUCKY
College of Agriculture
Forestry Extension
UTEXTENSION
INSTITUTE OF AGRICULTURE
THE UNIVERSITY OF TENNESSEE
CLEMSON
COOPERATIVE EXTENSION
UNIVERSITY OF GEORGIA
EXTENSION
UNIVERSITY OF
MARYLAND
EXTENSION
Solutions in your community
Virginia
Cooperative
Extension
Virginia Tech · Virginia State University
Southern Regional
Extension Forestry
MISSISSIPPI STATE
UNIVERSITY
EXTENSION


WOODLAND STEWARDS
A Regional Extension Program for Landowners